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D.A. GHANCHI

## Entrepreneurial Orientation to University Management in India

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## Human Resource Development in Open and Distance Education

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## Market Orientation of Technical Education

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**Editor :**
**SUTINDER SINGH**

# Entrepreneurial Orientation to University Management in India

D.A. Ghanchi*

### Introduction

Universities in modern India have been, by and large, an intellectual, academic, and administrative product of the British imperial regime the country was subject to for about a hundred and fifty years. Even now, despite half a century of political freedom from the British rule, the colonial legacy lingers, not only in the minds of the people, particularly those with the mandate to rule right from the village panchayat to the national Parliament, but also in the systems, structures and procedures that are in vogue to run the affairs of the state, of institutions, of corporations and even of non-government organisations.

It is not at all surprising that the mindset, the work style, the work culture and the climate that this legacy has given rise to are found to be incompatible with the new ethos of liberalisation, deregulation, transparency, autonomy, competitiveness, enterprise and accountability that has been generated by the forces of globalisation. Since 1991 when India too began partaking of the new ethos, the hang over of the colonial past in thinking, feeling, planning, governing and addressing problems and concerns of growth, of change, and of development has been proving a serious obstacle to the march towards desired progress in all walks of life — be they economic, cultural, educational, social or political.

Universities in India represent a very vital nation building enterprise, and it is they that find themselves terribly hamstrung by the colonial legacy, and, therefore, severely handicapped to pursue the goals, the policies and the programmes that should make them effective instruments of national development. It is high time, now that the country is on the threshold of the 21st century, that the universities were emancipated from these shackles — psychological, intellectual, moral and behavioural, and were transformed into a power house of new energy, new thrust, new will and new endeavour.

### What Ails the System

The system suffers from multiple ailments that have been, time and again, identified by eminent investigative bodies like the Radhakrishnan Commission (1946-48) and the Kothari Commission (1964-66), and recently graphically narrated in the NEP document (1986) and the Rammoorty Committee report (1992). The most visible among them are :

(1) Explosion of the number of the students;
(2) Inadequate infrastructure — physical, financial, administrative, and, of course, human;
(3) Proliferation of institutions;
(4) Increase in the number of sub-standard institutions;
(5) Political pollution of the system;
(6) Crass commercialisation of many an operation; and
(7) A widening hiatus between society and universities.

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Though the problems created by these developments are staggering in nature and ruinous in consequence, it is the deeper and subtler malady that afflicts the system which causes greater concern as it eats into the vitals of the university organism, and renders it incapable of delivering the goods in the form of quality education. What is the nature of this malady? Let's examine it.

(1) The system suffers from acute stagnation in respect of the curriculum, the courses, the classroom instruction, the examination procedures, the attitudes of the teachers, and the administration and even the relationship between the university system and the government as well as the monitoring body like the UGC.

(2) The system has developed insensitivity in multiple ways. It is insensitive to the critical national goals of regeneration, to the myriad socio-economico-political problems, to the individual learner's needs and tribulations, to the teachers' needs of professional fulfilment, and even to its own systemic and organic ailments.

(3) It has turned static, withstanding change, let alone welcoming it or inviting it. It appears it revels in the spurious safety of archaic Acts, Statutes, Regulations and Rules governing every aspect of the university system — constitution of its bodies like the Court, the Executive Council, the Academic Council, the Boards of Studies, etc and their functioning, the curricula, admission procedures, teaching, examination, research and extension.

(4) The university system has turned into a veritable citadel of mediocrity, be it the personnel who man the administration, or the faculty or the student population, be it the academics of the university or be it the ultimate product of the University. It is as if mediocrity has acquired a vested interest in self-perpetuating itself. Quality, excellence, competitive edge, state-of-the-art competencies, brand-name, global comparability etc, are yet to enter the lexicon of most of our universities, let alone in their academics, research, continuing education and knowledge generating pursuits.

(5) And, in a global scenario marked by innovativeness, proactivity and entrepreneurship, the system still, by and large, is entrenched into status quoism, obsolescence, reactivity, conformity and security of non-action.

It is these hidden ailments that have, during the last fifty years, led to the immobilisation, decapacitation and even fossilisation of the huge national enterprise called Higher Education. Such an enormous man making enterprise, involving around 250 universities, 9000 colleges, 60 lakh students, 4 lakh teachers and an annual investment of crores of rupees should have, by its sheer size and diversity, thrown up a human resource that could have earned a better ranking for the country, at least in the Human Development Report (HRD) of the UN than the lowly 137th place among the comity of 175 nations as reported in the HDR 1998. Barring a few leading universities and comparable institutions most appear to be breathing a vegetative existence, churning out graduates, and shelling out salaries for the workforce to subsist on. It is as if an existence of requiem, self-satisfaction and somnolescence. But, in the face of the impending third millenium can the country afford to have its system of higher education in such a state of slumber? Absolutely not. We cannot afford to give in even though we have a poor record of the past when we failed to make it because we faltered.

**The Therapy that Failed**

We tried a therapy of a piecemeal approach. And that too mostly addressed the symptoms rather than the basic malady. For example, we modified the academic structure of 11+4 and inducted that of 10+2+3, but implemented it with the old rules of the game. We imported the Oxfordian tutorial system but worked it devoid of its elan, so now it survives only in its anemic vestigial form. We semesterised the academic year without its concomitant operations making it ineffectual. We also introduced internal assessment and the grading system both of which got distorted soon after. We attempted to restructure the curricula but the exercise proved to be the old wine in a new bottle to our dismay. And we know what has happened to the idea of autonomy of colleges and departments. Even the latest attempt to vocationalise the undergraduate programme has yet to take off with all seriousness. The litany stretches long. It's been a spasmodic therapy, not at all contributing to the regenerating of the system as a whole in keeping with the demands of the fast globalising world. Such therapy merely serves as a temporary palliative, with the system ultimately sliding back into its usual vegetative existence.

And consider the huge cost inolved in terms of funds, resources and efforts towards administering this flawed therapy. It is said that India spends about 4.3% of its GNP on education; whereas South Korea spends only 3.2% and Taiwan only 3.1%, but the productivity, the quality the cutting edge and the efficiency of the last two are markedly superior to those of ours. Their higher education system has transformed them into the "tiger economies", whereas we continue wallowing in the much pitied "developing" existence.

**Paradigm Shift**

But a country of the size of India, with its enormous potential in the form of its human resource, cannot remain condemned to a "developing" status for long. Emancipation from it lies in super-education that its universities should offer through their metamorphosis into entrepreneurial agencies of human resource development. Our higher education system should be exorcised of its colonial *Avatar* devoid of freedom, initiative, courage, and self-reliance. Let the system remind itself of its mission thus sung by Tagore:

> *Where the mind is without fear and*
> *the head is held high;*
> *Where knowledge is free;*
> *Where the world has not been broken*
> *up into fragments by narrow domestic walls;*
> *Where tireless striving stretches its arms*
> *towards perfection;*
> *Where the clear stream of reason has*
> *not lost its way into the dreary desert*
> *sand of dead habits;*
> *Where the mind is led forward by Thee*
> *into ever-widening thought and action;*
> *Into that Heaven of Freedom, my Father,*
> *Let my country awake.*

This, of course, would need a paradigm shift from abject conformity to aggressive entrepreneurship in all respects, for entrepreneurship is the clear clarion call of the age of globalisation.

Of course, investing universities with reinvigorating entrepreneurship would demand a different set of ingredients in the world-view, the perceptions, the approaches, the attitudes, the commitment and the work ethics of all the players in the university enterprise, particularly the vice-chancellor and his partners, the faculty, the students, their parents, and the supporting agencies like the government, the UGC, and a number of other bodies. What are those ingredients of entrepreneurship in higher education? To name the most significant of them, they are listed below :

(1) *Strategic thinking* in respect of envisioning goals, curriculum designing, methods and media development, selection and use, workforce sourcing, programme management and funding.

(2) *Flexibility* in course offerings, in adopting diverse teaching, learning and evaluating modes, in admitting students, in-sourcing and out-souring the university management, and management of finances.

(3) *Risk-taking* in doing away with dogmatic, conformist, ritualistic, timid and status quoist approaches, procedures, programmes and precedents, in adopting unconventional initiatives in academics, examining, accrediting, staffing, and going global in all respects, particularly of competitiveness, quality, technology-friendliness and market-savvyness.

(4) *Networking* in respect of human resource, technology, academics, distance education, training, placement, consultancy, collaboration; establishing connectivity, horizontal and vertical, and inclusive and integrative human resource management.

(5) *Proactive functioning* in all respects, particularly policy formation, goal-setting, course planning and transaction, liaising with business, industry, finance, services and administration; personnel management and envisioning future initiatives and programmes.

(6) *Benchmarking* with reference to the best performers in the field of higher education in the state, the region, the country and even the world in respect of academic programmes, standards and templates, excellence in performance, work culture, methods and materials, and in management mechanisms and procedures, especially of knowledge and learning management, management of change and of human resource.

(7) *Focussing* itself, its programmes, innovations, unconventionalities, achievements and aspirations, pro-society, pro-development and pro-human perspectives and performances, challenges and opportunities, and its indispensable positioning in the academic schemata of the higher education in the area.

(8) *Debureaucratising* all its dealings at all levels with people, students, their parents, teachers and staff, business, industry and corporate world, even with the government of the day, the NGOs; debureaucratising the decision-making process at all levels — in classrooms, in libraries, learning centres, on the stage, and developing transparent, open, guileless, wastage-free, non-dialatory, participatory mode of operating the micro as well as macro systems through uncompromising enforcement of the Rule of Law. In essence, it is professionalising the university management instead of leaving it under a command and control regime inherited from the colonial rule subsequently politicised under a manipulative political dispensation steeped in self-promotion through corruption in all forms.

(9) *Quality assurance* with commitment to zero

defect performance philosophy in administration, academics, research, continuing education, knowledge generation, and in human relations at all levels by employing appropriate procedures of delayering, downsizing, re-engineering, and restructuring the various departments of university work.

(10) *Funding*, both autonomous and responsible, ensuring cost-effective strategies that must promote self reliance to a large degree, by adopting self financing projects, market savvy finance management procedures, at the same time adequate provision for social justice and economy and elimination of wastage; a proactive fund generating policy in cooperation with business, industry, research organisations, consultancy agencies etc with a view to broad-basing resource generation and reducing substantially the traditional dependence on the government.

This is, in short, a ten-dimensional concept of entrepreneurship in higher education. Universities in Europe have already launched a movement to transform themselves into entrepreneurial organisations. We in India should also benchmark our universities with the entrepreneurial universities of Europe. Two universities of the UK are already classed as entrepreneurial universities. They are the Strathclyde University and the University of Warwick. The Association of Entrepreneurial Universities of Europe has embarked upon an ambitious programme of expanding their fraternity through rigorous accreditation. We can emulate them by pursuing an India-specific strategy. It is of the Mission Approach. Let's delineate it.

**The Mission Approach**

It is not asking for the sky when one considers the inevitability of infusing the spirit of entrepreneurship in our universities now that such universities from foreign lands have started setting shop in India successfully, and even marketing themselves at a premium. Analogically, it is like the MNCs in the fields of business, finance, insurance, industry, even entertainment, and several other areas proliferating in the country, challenging the erstwhile hyper-protected establishments and enterprises of the native origin to compete for survival as well as superiority. The Indian universities have a similar challenge for the special reason of producing the human resource of the country to take on the fast emerging competitive world order from which India cannot afford to remain aloof, nor allow itself to be swept away by the fierce avalanche of change and of competition.

Then, how should the Indian universities try to acquire the entrepreneurial *Avatar?* What is the *Mantra* that can transform them into veritable entrepreneurs of the huge enterprise of human resource development? Fortunately, the country has had the experience of the Mission Mode of carrying out specific agenda of crisis management. For example, it has been done in the field of spreading literacy with considerable success. That experience can be replicated in the field of university management, with, of course, due regard for specifics. We can conceive of at least four missions to launch the programme in the initial stage. They are asunder :

(1) A mission for productivity
(2) A mission for quality
(3) A mission for networking
(4) A mission for sustainable financial management.

The areas of operation of each mission should be worked out in the context of the ten ingredients of entrepreneurship described earlier. The constitution of a mission, its powers and modes of its functioning and the modalities of the operationalisation of its action plans should be worked out in detail by a university or a consortium of universities in the area with the moral and material support from the state and national governments and the agencies like the UGC, the NGOs, corporate houses, and the community at large. The guiding beckon should be genuine entrepreneurship in all its connotations.

Though there is considerable historical evidence to be skeptical about the fate of any innovative initiative in the Indian academic world, the contemporary ethos found in the fields of business, industry, finance, management and information technology, thanks to the impact of globalisation and a 'can-do' spirit of boundless confidence and adventure generated by a number of experiments of autonomous educational initiatives like the IITs, IIMs, IIITs, and self-financing institutions, must keep us from unnecessarily getting cynical and different. It would indeed be spirit-enhancing to remind ourselves of a couplet by the late Dr. Mohammed Iqbal who sang it when the struggle for India's independence was experiencing an ebb of spirit in the face of the might of a strong empire.

*Tun shahin hai, parwaz hai kam tera,*
*Tere waste aasman aur bhi hain.*

And what can be the better time for a flight in entrepreneurial skies than today when the country is poised for great strides? Universities are,

*(Contd. on page 7)*

# Human Resource Development in Open and Distance Education

**Madhu Parhar***

## Backdrop

Indian higher education provides educational opportunities to an estimated 60 lakh students. Out of these 60 lakh, about 12 lakh or 20 per cent are enrolled in one or the other form of open and distance education. They are serviced by about 80 universities and university type institutions. Prestigious institutions like IITs have also taken advantage of this new mode of educational delivery.

Distance education has thus come to stay in this country. This mode of educational delivery has been widely accepted all over the world across the developing and developed countries, as is indicated in the contemporary literature on the subject. Distance education, in the form of correspondence education was started in Delhi University in 1962 to accommodate the increasing demand for places in the university. The demand has steadily increased all over the country, and it has been recognized that this ever increasing demand cannot be met by formal conventional system. Hence more and more universities and organizations both within and outside governments are taking to this new mode of educational delivery.

There are broadly four categories of open and distance education outfits in the country. These are :

- National and State Open Universities,
- Dual Mode Universities,
- Professional Societies, and
- Private/Corporate Sector Organizations.

The Open University system comprises, Indira Gandhi National Open University, and State Open Universities in Andhra Pradesh, Bihar, Gujarat, Karnataka, Madhya Pradesh, Maharashtra, Orissa, Rajasthan and West Bengal. While Andhra Pradesh Open University, now renamed as BR Ambedkar Open University was the first open university in the country, some of the states, like Orissa, West Bengal, etc have just set up the open universities. More than 70 conventional universities, deemed universities and university type institutions offer a variety of courses through distance education. While most of these conventional universities, now termed as dual mode universities offer a range of undergraduate and postgraduate courses, some offer only one or two courses e.g. Jamia Millia offers course in Urdu through distance education. Quite a few universities offer job oriented vocational diploma and certificate courses.

Institution of Engineers was the pioneer in distance education in the country when it offered AMIE course, subsequently the MIE program. These programs are widely recognized and commended as equivalent to B.E. and M.E. respectively. Besides the Institution of Engineers, several other major professional societies offer courses through distance education. These are AIMA, IETE, ICA etc offering courses in engineering and technology, chartered and cost accountancy, etc. Looking at the potentiality and profitability several private and corporate organizations offer courses through open and distance education, some of the prominent ones are Brilliant, Aggarwal, Rapidex, NIIT, APTECH, etc. While some of them offer postal coaching for competitive examinations, some like NIIT and APTECH offer full course on Information Science leading to graduate and postgraduate equivalent qualifications. NIIT became one of the first virtual universities in the world. A new development is the joining of hands between the open universities and the private organizations; for example, IGNOU's course on computers is now being offered by APTECH and other such organizations.

There are wide variations in both practice and quality of programs offered by various types of institutions. The national and the state open universities vary in their structure, program design and quality. The dual mode universities not only differ from the open universities but also among themselves in terms of program design, quality, delivery and student assessment, staff structure, etc. In some of the universities, the distance education department enjoys the status of a faculty, while in some others, they operate as a department or an affilated college. These wide variations among the institutions affect the quality of instruction, and also the reputation of the system. There is a need to improve the quality of open and distance education and continuously adapt to new developments. The key to this continuing development is in human resource development in open and distance education.

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### Human Resource Development

Unlike the school sector, training of academic staff has not been very popular in higher education. First major exphasis on Human Resource Development (HRD) in higher education was given in National Policy on Education in 1986. Result was the establishment of Academic Staff Colleges (ASCs). But the programs offered by the ASCs are largely for improving instruction in the conventional system. Staff training development in open and distance education is one of the major areas of concern. The Staff Training and Research in Distance Education (STRIDE) was set up in IGNOU for staff development in the national and state open universities. Although there are stray cases of staff development intiatives for the distance education staff in the dual mode universities, there is no organized mechanism for the same. Similar is the case with the professional societies and the private institutions. Even if the professional societies and private institutions are kept outside for the time being, it is necessary to take into account the complete scenario and develop a comprehensive plan of HRD for open and distance education. This can be argued further in terms of number of students enrolled in various types of open and distance education institutions in the country. The enrolment in the dual mode universities together far out number the total enrolment in the open universities put together. It will hence be meaningless if HRD efforts concentrate only within the boundaries of the open universities, and the correspondence education institutions in the dual mode universities are kept out of the purview. Similarly, the professional societies and the private organizations offer courses to a few lakh Indian students. Wherever the students are, Indian apex organization like IGNOU and its STRIDE has a role to play and a responsibility to discharge.

### Category of Personnel

Open and Distance Education Institutions require large number of people in different categories of tasks like course designing, courseware authoring, illustration, printing production, providing student support services evaluation, etc. To back up all these activities are the management functions and functionaries. Various types of personnel involved in open and distance education are : Curriculum Developers and Course Designers; Courseware Authors; Illustrators, Layout Designers and Production Specialists; Media Specialists; Counsellors; Tutots; Coordinators of Study Centers; Management Personnel; and Subordinate Administrative Staff, etc.

There is a need to identify the various categories of personnel that support the distance education system. There are no common pattern in staffing even among the formal institutions of distance education. For example, Distance Education Department of Delhi University has more than 90 academic staff at various levels, whereas distance education departments in Bombay University have only the director with a secretariat staff. While these two are the extreme ends of a continuum, other universities stand in between. In these institutions, the major input in curriculum designing, courseware authoring, counselling, tutoring and evaluation is provided by teachers from the conventional teaching departments. This is true in the case of national and state open universities. For example, IGNOU Program Advisory Committees and Course Teams, courseware authors, comprise very large number of professionals from the conventional universities. Unless all such staff are covered by the HRD provision, staff training provided to IGNOU and other open universities will serve limited purpose. In the emerging situation, a comprehensive plan of action is need for training and development of all those who contribute and influence open and distance education irrespective of their substantive location within conventional or open learning institutions.

### Training Need Assessment

Unfortunately no serious effort has been made to assess the number of people who are actually involved in distance education in the country. Therefore, a comprehensive plan of action for qualitative improvement of human resource in distance education will need an assessment of training needs. Rough estimates indicate that there are about 4,000 full time and about 34,000 part time staff positions in the distance education units in the dual mode universities. Another about 34,000 full time and part time staff service the open universities. This is besides the people involved in open and distance education in the professional societies and the private sector organizations.

However, this is only the quantitative aspect of the assessment. This too is incomplete, since the break up between academic, ohter academic and administrative staff are not available. Also, this information does not include the number of academic staff from the conventional university departments involved in courseware authoring, media production, etc. Similarly, the number of staff involved at the field level for counselling, tutoring, teaching in the personal contact programs, student assessment are not known. There is a need to develop an information system on the personnel involved in open and distance education in the country.

For the qualitative assessment of the training need, it will be necessary to undertake professional studies for each category of personnel. Besides the academic skill area, such studies will also require assessment of attitude towards open and distance education, professional preparation and skills, and training needs as perceived by the personnel involved in open and distance education. Such intensive study will provide scientific basis for designing meaningful programs of inservice education of distance education personnel in the country.

### Training Methodology

Question arises regarding the mechanism for offering training to such large number of people within a reasonable time frame. University Grants Commission (UGC) has set up the Academic Staff Colleges for providing orientation and training to the college and university teachers. UGC has delegated the authority to IGNOU to provide training to the distance education personnel in the country. The IGNOU has assigned this task to STRIDE. Academic Staff Colleges (ASCs) have adopted face to face conventional mode of training for number of college and university teachers. In the first ten years, ASCs have been able to cover more than 70,000 out of about 400,000 college teachers — average of 7,000 per year. At this rate, it would take about 40 years to give first training to college teachers. Similarly, if STRIDE organizes even three conventional programs in a year, it would require almost 70 years to cover once all the teachers in the open and distance education system. Obviously, face to face mode should be kept aside as it is a colossal task and not possible.

The only alternative is the distance education mode. Exceptions apart, face to face staff development programs comprise lectures followed by question-answer, occasionally there are exercises. The distance education mode can be designed in a manner that the strengths of the face to face mode are incorporated. On the basis of the training need assessment, it will be necessary to develop training material in the self-instructional format. The training material can be sent in advance to the prospective teachers. The learning through the self-instructional material will serve the purpose of getting the first set of information that are usually communicated through lectures. The print material can be further supplemented by interactive television where participants can listen to the expert faculty on the television through TDCC channel, they can ask questions and interact with the faculty via STD and Fax lines.

IGNOU has the hub that can uplink programs and has more than 150 reception centres in the country where the participants can view and interact from. There are advanced two-way video interactive system also with NIC, VSNL, BEL, DOT, etc., and some of them are available on hire.

### Coverage

Usually, one virtual classroom through interactive television can effectively cover about 300 participants; there is no limit to the coverage through print material. Thus, about 20 one-week programs per year can orient about 6,000 staff. This distance education mode will cover, all the teachers in a few batches in a few years. Accordingly, IGNOU can develop a mechanism for recurrent inservice education once every three to five years for distance education personnel in the country. The model proposed in the National Action Plan on Inservice Education of Primary Teachers prepared by National Steering Committee appointed by MHRD, Govt. of India in 1996 needs serious consideration. Hopefully, such a system of training will open up a new vista for the staff development methods in the formal as well as in the open and distance education institutions.

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## Entrepreneurial Orientation to University Management in India

*(Contd. from page 4)*

primarily, a power house that fires the imagination of the youth of the country to embark upon a journey of adventure into the unknown. Let's not fail our youth for, as the poet H.W. Longfellow has sung in his immortal *Ode to the Youth*, they are restless to soar and scale heights unscaled so far by man:

*How beautiful is youth! How*
*bright it gleams!*
*With its illusions, aspirations,*
*dreams.*
*Book of beginnings, story*
*without end,*
*Each maid a heroine and each*
*man a friend.*
*All possibilities are in its*
*hands.*
*No danger daunts it, and no*
*foe withstands,*
*In its sublime audacity of*
*faith___*
*With ambitious feet, secure*
*and fond,*
*Ascends the ladder leaning on*
*the clouds.*

# Market Orientation of Technical Education

Om Vikas*

Technical Education is an important factor of economic growth. There is continuum of technical education ranging from assembly and repair to design and development. Market drives technology development, and decides number and kind of technical manpower. Curriculum development and management are key issues of planning Technical Education.

Curriculum should be flexible and responsive to social needs/market. There should be horizontal flexibility and vertical linking to provide a "Coherent System of Technical Education". Federal Plan provides broad guidelines and model implementation of a few centres of excellence. State plans should keep conformity and mobilise resources to provide technical education to meet local needs. The resource of "teacher" is most important. Teacher acts as a professional and a coordinator. Rapid change in technology necessitates reorientation of teachers periodically and certification of their content competency. Shelf-life of a degree is now 3 to 5 years only.

Thus efficacy measure (e) of technical education (TE) is a function(f) of man (M1: teachers), (M2: resources), Market (M3: labour-market), and management (M4: planning and implementation).

e (TE) = f (M1, M2, M3, M4)

**Present Scenario**

Present technical education system is a disconnected and fragmented system, rather than a "Coherent System". There is emphasis on enrolments than on outcomes. Virtually entire burden falls on students to find their way in vocations and jobs, just as customers in a market place choose among alternatives. There has been more attention given to creating a ("disconnected"!) system of technical education, supplying workers to the labour market, than to the development of labour market itself which is unorganised, where value of formal credentials is uncertain, where information about skill requirements is poor. In this kind of labour market, students make mistakes in preparing for jobs which do not exist or are short-lived, and fail to gain competencies that are necessary for long run mobility.

In India, vocalisation is deemed to be terminal education with no or little scope of vertical mobility. Vocational curriculum is designed with the assumption that it is opted by dropouts of the academic stream, low grade, average students. Moreover, the passouts do not find due recognition in the society. This negative approach of curriculum development must change. Axiom for vocalisation should be to strengthen practice-oriented abilities of right brain predominant students to motivate them for innovative practices and entrepreneurship, to enhance their foundation skills like motivation and communication skills, to develop inter disciplinary generic skills at usage level.

What abilities does the labour market need?

The professional intellect possessing the following abilities will be in demand :

(i) Cognitive knowledge (*know-what*):
  Basic mastery of discipline that is achieveable through extensive training.

(ii) Practical Proficiency (*know-how*):
  Ability to effectively translate theory into practice.

(iii) Instinctive Perception (*know-why*):
  Instinctive in-depth perception of the cause and effect of relationship.

(iv) Creative Achievement Motivation (*care-why*):
  Desire and drive to achieve success.

(v) Interpersonal skills (*concern-who*):
  Ability to effectively deal with people in order to generate enthusiasm in the work place leading to common goals.

There is expectation that the curriculum emphasises interdisciplinary generic skills, learner centered learning, system integration, total solution approach, and domain specific knowledge.

Employers cannot look to educational institutions to provide all the skills they need. Instead, employers in the sub-baccalaureate labour market virtually look for experience when hiring. Much more than formal schooling, experience is an indicator of the skills which employers value : mastery of specific machines, production processes; motivation and persistence; and the ability to work with others. School-to-work programme suggests a general process to connect up every education and job training program to the next more sophisticated in a series of offerings providing a vision of how to create a more "Coherent System."

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**Towards a Cohent System**

Evaluation schemes in the technical education system may objectively test cognitive knowledge. There is a great deal of subjectivity in the evaluation of practicals. Other skills are tested during project implementation and on-the-job-training. It is proposed to introduce computer-based Practical Proficiency Test (PPT) for students. This will be an important assessment indicator for the labour market.

Teachers (M1) play an important role in raising the quality of technical education which is influenced by rapid change in technology. Efficacy of teachers reorientation programmes must be assessed through another computer-based Content Competency Certification for which teachers should be encouraged by providing an incentive of additional increment in their pay. Teachers and project guides must be drawn from the industry/labour market. In fact, a technical education programme should begin in an institution only when a consortium of industries in the region guarantee to provide on-the-job training for the students, exposure to major projects to the teachers, and industry experts for part time teaching and project guidance. This needs government policy to give tax-exemption on the expenses on the above industry-institution interaction.

Resources (M2) are important to be generated to impart high-quality technical education. Resources may be mobilised from the industry in cash and in kind with incentive of tax-exemption. Alumni may be attracted to set up laboratories in their names. Contributions may be collected for improving the library.

Involvement of labour market (M3) is pre-requisite to achieving sustainable excellence in technical education. Industry must participate in the plan of courses, practicals, evaluation, setting up laboratories. There should be industry representatives in staff recruitment and students selection committees. Participative role in decision making of the institute will motivate/attract industry to develop sense of belonging and contribute towards achieving excellence. Monetary benefits, in terms of tax exemption, will be a practical way of attracting a business firm.

Management (M4) is a broader term. We may first concentrate on vertical movement. Curricula at foundation, middle and higher levels of technical education must be so developed to result into a "coherent system", that provides vertical linkage, flexible entry and exist points, flexibility of innovative teaching methods, opportunity of innovation/exploration to outstanding students, cognitive knowledge, practical proficiency and foundation skills. ITI must be able to move to polytechnic to degree level to Doctoral programme. Horizontal mobility should also be provided: vocational to academic stream and vice-versa. One should be able to leave the programme, join the industry and after sometime rejoin the programme. Geographical mobility should also be permitted by way of transferring credits. Developing Centres of Excellence (COEs) in a polytechnic/technical institution will induce competition and will be useful for the industry to benefit from high quality manpower and less expensive consultancy from the faculty of COE, and exposure to peer industry problems. Funding for COEs may come 1/3 each from industry-consortium, state government and central government. COE should centre around the strength of the industry in the region. In sugarcane region, it may be sugar technology; near software technology park, it may be information technology etc. COE in the polytechnic alone may not succeed. Training of total solution approach may rather be imparted by setting up a vertically and horizontally group of industry, ITI, higher-secondary vocational stream, polytechnic, and R&D lab (under CSIR/DBT/DST...) with a technology-clinic. Technology-clinic organises workshops in which local industries present their design problems. ITI fellows/vocational school students get "exposure" to the major project/problem, polytechnic fellows integrate skills/subsystems to "find solution", Degree level fellows "provide innovative design tools and techniques". Faculty as a surgeon's team, provides consultancy for obtaining total solution.

**Conclusion**

Technical Education should be developed as a "coherent system" with vertical linkages and horizontal flexibility. Efficacy of Technical Education System is determined by teachers, resources, labour market and management. Computer based Practical Proficiency Test for students and Content Competency Certification for teachers are proposed to ensure high quality.

Interaction between industry and institute may be strengthened by increasing industry participation in the decision-making processes of the institute. To effectively implement this, the institute should be given functional autonomy. Additional resources may be mobilised from industry, alumni and community. Centres of Excellence (COEs) may be developed around the prominent field in agriculture, manufacturing and service sector. Polytechnics/technical institutions should also contribute towards life-long learning. Major industry or an industry-consortium should be encouraged to set up integrated institute (ITI - 10+2 vocational, polytechnic - B.Tech-R&D lab) with a technology-clinic, promoting practice of experience oriented industry interaction. AICTE approved curricula with innovative projects and industry attachment, and flexible entry & exit points should be encouraged.

# A New Degree Programme in Public Administration for Universities

M. Jayapragasam*

In our country, the state and central governments are the biggest agencies which recruit persons to different categories to run their day-to-day activities. The different public sector undertakings and quasi–government organisations also need manpower to manage and run their show. The private enterprises mostly prefer graduates in commerce or management with experience in typing. Sometimes graduates in other subjects are also recruited by them based on other qualifications, experience and various other factors. However, the qualification for the post of Junior Assistant/Lower Division Clerk or Assistant/Upper Division Clerk in government service is +2 level. This qualification was fixed about 50 years ago when there were very limited number of graduates. These government employees are expected to pass a Departmental Test and Accounts Test in a period of about five years. There is also an Accounts Test for Executives which is required for higher level of government officials. This is the only item the government officials find useful to the employment and is acquired after they enter government service.

The literate percentage has enormously increased after independence and there are states like Kerala with cent per cent literates. Other states like Punjab, Haryana and Tamil Nadu are making rapid progress in the field of education. Next to courses in computer science, there is very heavy competition for the courses in commerce/corporate secretaryship and management in spite of the programme being available in many self-financing colleges. The graduates in commerce and management go for white-collared/managerial/executive jobs. For clerical job in government service, though the eligible qualification is +2 almost all the persons recruited in recent years are graduates in different arts and science subjects. The graduate study they have undergone has no relevance to the job when they are recruited as clerks/administrative staff. Therefore the money spent on their education becomes a waste. These students simply for the sake of getting a degree join the college and have no seriousness for the study. They indulge in all sorts of unwanted/deviant behaviour during the study period creating problems for the college, teachers and to other students in the college.

## Bachelor of Public Administration

There is a Master's degree programme (M.A.) in Public Administration in many universities offered invariably through distance education programme. Any graduate is eligible for this degree programme. The Bachelor's degree of the candidates who join this degree programme becomes waste since it has no relevance to the subject of public administration. Mostly unemployed graduates and those employed in government/private organisations join this degree programme through School of Distance Education for the sake of getting a Master's degree. The syllabus for the M.A. Public Administration covers only limited areas and does not cater to the employment market needs. Therefore there is an urgent need to prepare a new course to suit the requirements of the government which is the biggest investor in the field of education and human resource development and is also going to be the biggest beneficiary from the degree programme. A new Bachelor's Degree Programme in Public Administration (B.P.A.) is proposed and its salient features are discussed here. The new degree programme is designed to suit the requirements of the administrative jobs in government service/public sector undertakings as well as private enterprises.

## Key Concepts

The key concepts of the new degree programme have been shown as a flow chart in Figure 1 and the details are described below.

1. The new entrants to the government job should have sufficient knowledge about the country and the state to which they belong and in which they will be working. He/She will be moving from place to place on official duty or may be transferred from one place to another place. Therefore he should know the different places, their geographic location, their importance/significance, resources available etc. Hence two papers on geography — Indian Geogra-

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phy and Geography of the State — may be included in the B.P.A. degree programme.

2. A knowledge on our Constitution and the administrative set up will be very essential for the job. Unless the candidate knows about the organisational set up of the state in which he is going to work he cannot do full justice to the job. We talk of Gandhian *Ramarajya* and *Ahimsa*. But how this *Ramarajya* may be achieved? What is the organisational set up from the highest to the village level? These are covered in three papers — Indian Constitution, Indian Political System, and Local Administration.

3. The person who works in government service should be fully aware of the laws of the state particularly related to labour and administration so that he can act according to and within the laws of the state without deviating from them. Therefore two papers, Labour Laws and Administrative Laws, are included as part of the curriculum.

4. Finance and Accounting are important components of public administration. Information on sources of public money, effective utilisation of it, accounting procedures etc are needed for any government servant. The financial powers of different officers in government service has to be known to him. By including two separate papers on Public Finance and Accounting these requirements are satisfied.

5. Effective communication to convey very clearly the intentions of the government is a must for a public servant. He has to draft rules/guidelines/reports etc for various purposes as part of his job. Two papers on language and communication/translation have been included as an integral component of the course programme so that he is not ambiguous and is clear about what he wants to say.

6. The latest innovation — computers in office administration — has been included as a separate paper. There is virtually no field where computers cannot be put to use. Computers speed up the administrative process, reduce the burden of the staff, lessen the space required for storage of government records and may even reduce the manpower requirements.

7. Adequate knowledge on personnel administration is another essential requirement for government service. Selection of right kind of persons for each job is a must. Recruitment procedures, qualification for job needs, punishment/disciplinary action etc may be included in a separate paper — Public Personnel Administration.

8. Public relations is very often a neglected field by the government. At present the officials of the Department of Public Relations alone are qualified to some extent in Public Relationship. Each government servant should reflect the policies of the government like a mirror. Hence Public Relations forms a paper in the B.P.A. degree programme.

9. Human resource development is yet another area which has received little attention of the government. The training needs of public servants, planning for future requirements etc are useful and a paper on Human Resource Development is included.

The degree programme will be of three years duration like any other degree programme in colleges. The tentative yearwise distribution of the subjects is given below :

**I Year**

1. English—Business communications
2. Indian Constitution
3. Indian Geography
4. Public Financial Management
5. Public Personnel Administration

**II Year**

1. Regional language—Translation
2. Indian Political System
3. Administrative Laws
4. Geography of the State
5. Human Resource Development

**III Year**

1. Local Administration
2. Labour Laws
3. Computers in Office Administration
4. Public Relations
5. Public Accounting

The students may be instructed to pass in Typing/Shorthand as a pre-requisite for the award of the degree B.P.A. Additional paper on the administrative set up in any one of the government departments like Agriculture, Police, Co-operation, Municipal Administration, Education etc may be included in the curriculum by the universities. This new degree programme may not require any substantial financial requirements since the study materials/books for most of the courses are already available as part of other degree/diploma programmes. The degree programme has been designed in such a way that not only the government is benefited but also the employees are aware of their powers and responsibilities in different situations/positions. Initially the programme may be introduced as a distance education programme under non-semester pattern with annual examination giving preference to the existing government servants. Once the programme becomes popular, the government should make it a point that graduates of this subject are preferred for the job. As far as the demand is concerned it is definitely going to be the most sought after degree programme. The curriculum may be improved by the universities concerned after discussion with other government officials. The detailed syllabus may be already available for most of the courses and may be revised if required. The existing degree programme M.A. in Public Administration of many universities has altogether different courses and may be retained as such or modified wherever necessary.

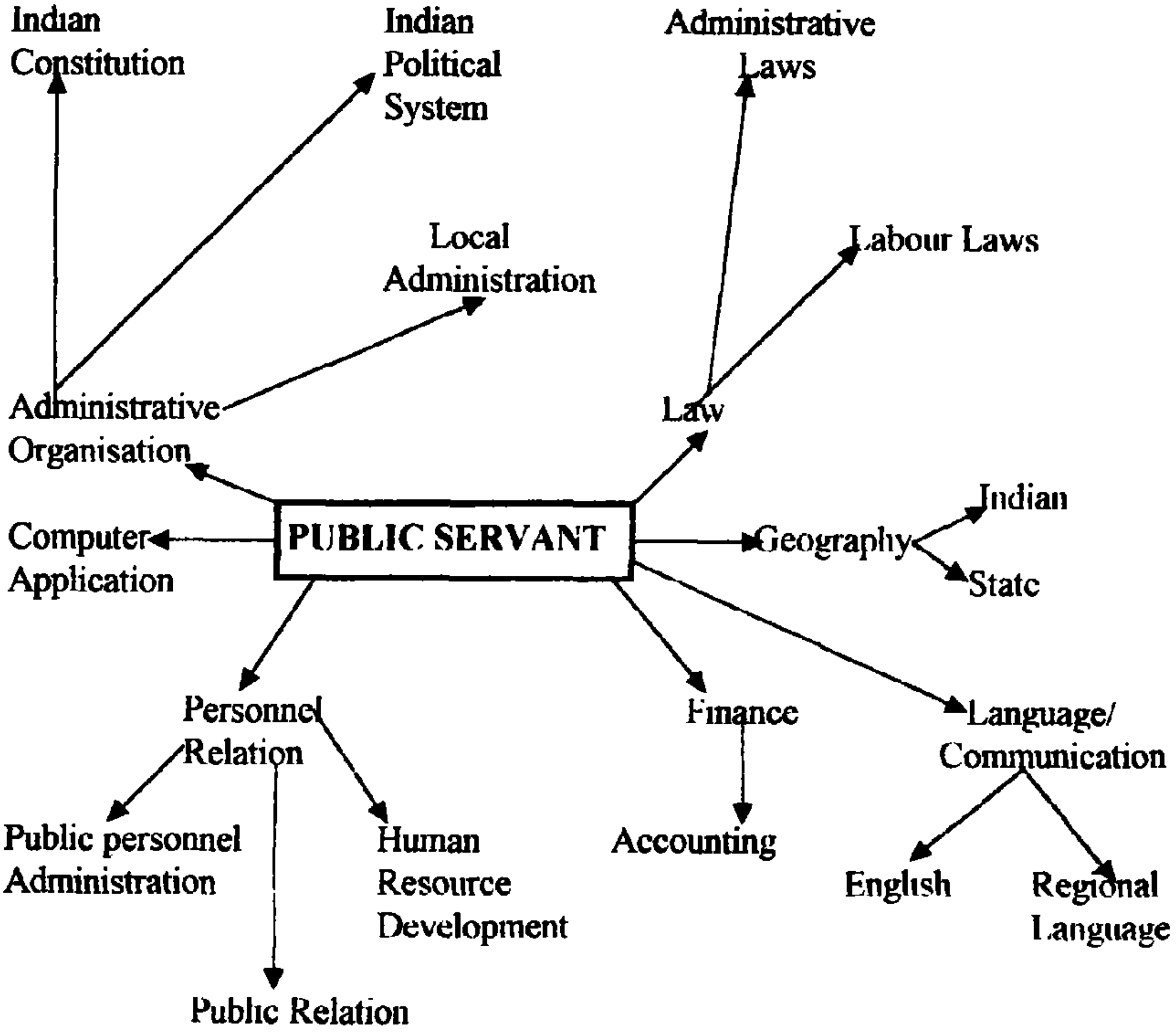

**Figure 1 : Key Concepts of the New Degree Programme in Public Administration.**

# Borderless Science : The Need, The Challenge and The Way Ahead

**Dr. R.A. Mashelkar, Director General, Council of Scientific & Industrial Research and Secretary, Department of Scientific & Industrial Research, New Delhi, delivered the Third Convocation Address at the National Institute of Mental Health and Neuro Sciences (Deemed University), Bangalore. He said, "The leadership in science tomorrow will rest with those who are daring to travel the intellectual path by recognising the key role of cross-disciplinary partnership between scientists and engineers from different disciplines. Advances will be the sum total of numerous creative ideas and interdisciplinary cooperation". Excerpts**

Science is galloping at a breath taking speed today. Ninety per cent of the scientists who ever lived are living today. The rate of new knowledge generation has increased manifolds; indeed Knowledge doubles up in less than ten years now. Scientific breakthroughs take place most frequently at the intersection of disciplines. NIMHANS has given the multi-disciplinary team effort a great thrust with the objective of promoting preventive and curative medicine. The founders of NIMHANS have brought together the modern biological, physical, scientific and sociological knowledge and the ancient wisdom under one roof. I am so impressed with this success of NIMHANS in promoting borderlessness, and indeed so convinced of the necessity of enlarging this approach to a whole range of endeavours in science, engineering and technology, that I have decided to make it the theme of my present convocation address. I would be speaking to you today on borderless science, the need for it, the challenges that await us and also the way ahead. I will later on extend the context of borderlessness even further to other areas.

## Borderless sciences & emergence of engineering science

We see that discrete boundaries no longer exist between various natural sciences such as physics, chemistry, biology, mathematics, etc. Explosive advances in adjacent sciences are shaping up the future of core disciplines. New paradigms of "seamless sciences" and even "seamless engineering" are emerging.

Take sub-disciplines such as inorganic chemistry, biological chemistry, organic chemistry and physical chemistry. The conceptual boundaries between these disciplines have already vanished. The 1987 Nobel Prize winning work of Lehn, Cram and Pedersen, led to the elucidation of molecular recognition. It lead to the whole new area of supramolecular science and engineering. Their work showed how subtle organisation of molecular, structural and dynamical features formed the basis of ***molecular information engineering***. The chemical, physical, and biological features of chemical species constituted the essence of this highly inter-disciplinary field. It involved the organic synthetic techniques of receptor construction, metal ion-ligand complexes involving physical chemistry and finally biological processes involving substrate binding and recognition. Its location at the intersection of chemistry, biology and physics made it a truly unique achievement.

It is not in scientific disciplines alone that the boundaries are breaking. They are vanishing between engineering and science also. A new breed of engineering scientists is emerging. I am myself an engineering scientist.

What is an engineering scientist? Let me give an analogy with the medical school. We have there basic scientists, who generate new knowledge, but it is knowledge for its own sake. Then we have the hard core practising clinicians, who use the established tools in their everyday practice. But in between these two communities, there are those academic clinicians. They are the ones who understand the language of the basic scientists and they are the ones who know the demands of the profession, as reflected by the clinicians. What these academic clinicians do is to use the methods of science to develop new tools and new paradigms that the practitioners would find helpful. They also communicate the needs of these practitioners to the scientists. To my mind an engineering scientist is like an academic clinician, a facilitator. His task is to look at the continuous advances that take place in basic sciences such as chemistry, biology, physics, etc. He would harness this knowledge to develop new tools, which hard core engineers would put to use. Engineering scientists brings a rich variety of skills, tools into the profession from adjacent sciences.

It is obvious that in similar way, there will have to be others, who break barriers between say natural sciences and social sciences, and so on.

### Borderless approach to problem solving

Today, more than ever before, we not only need "borderless science" but also need "borderless thinking" for problem solving. Yet we find that we work and think in isolation. Let me illustrate this by taking up a problem that we encounter in our everyday life, namely mixing. Mixing is a challenge in diverse disciplines. In the case of astrophysics, one is concerned about the mixing of the interior of stars. In mechanical engineering, it is combustion. In environmental sciences, we are concerned with mixing and dispersion in the atmosphere. Oceanography deals with mixing and dispersion in oceans. Chemical engineers are concerned with mixing in chemical reactors. Physiologists look at mixing in blood vessels. Bioengineers are interested in mixing & aeration in bioreactors. Geologists deal with mixing in the mantle of the earth. All these diverse mixing phenomena occur on diverse time and length scales, differing by several orders of magnitude. However, these disciplines rarely benefit from each other, and discovery & rediscovery of concepts and ideas is a common place.

Let me take this point further and show the blending of traditional engineering with developments in modern day physics, such as dynamical chaos, can open up new vistas in mixing. Indeed dynamical chaos can provide a new paradigm for analysing mixing from a universal view point. Whenever one wants to mix a fluid in vessel, chemical engineers use a mechanical stirrer. They always operate it at a fixed speed of rotation. One never thought of subjecting the stirer to a periodically changing speed. The Japanese showed a few months ago that by using unsteady and time periodical speed, one could improve the mixing efficiency by as much as 100 times! They demonstrated that by this strategy one could induce chaotic mixing and destroy islands of unmixed regions in the chaotic mixing regions. The message is that even the mundane can become sublime by continuous blending of new knowledge in other disciplines.

### Borderlessness leads to new insights & new business

Let me give you another example, which may be closer to your heart, as it is linked to the issue of recognition of taste by the brain. Breathtaking synergistic efforts from diverse disciplines interpreted by using the theory of dynamical chaos, are leading to new ways to taste detection.

Let us consider membranes with biological activity. Properties such as the action potential, spontaneous firing and chaotic behaviour can be viewed now from a system dynamical viewpoint. The simple philosophy followed here is that the substances as received by biological membranes change the membrane potential leading to sustained oscillation and spatiotemporal firing patterns of the neurons, which when transmitted to the cortex and the brain, recognizes the taste. It is thus possible to use an artificial lipid membrane to convert chemical information to electric currents and construct sensors that identify the taste. The prowess of the borderlessness in advancing the knowledge is at once obvious here.

It is not in improving our knowledge and insights alone but also in making economic sense of science that the strategy of borderlessness is helping. Take the issue of new drug discovery. The new ways of drug discovery have been aided considerably by fusion of disciplines. Take combinatorial chemistry. It involves light directed chemical synthesis which combines semiconductor based photolithographic techniques with solid phase organic chemistry to produce arrays of molecules with potential biological activity. The fast development of genome analysis of pathogens and also of plants, animals and humans has provided a rich source of new targets. Cell biology and structural biology and new technologies viz. bioinformatics and combinatorial chemistry are being brought together to set up the dream of "2000 by 2000"—i.e. moving from mind to market place in the case of a drug within 2000 days by the year 2000. This means reducing the new drug development time by half! You can see again the prowess of borderlessness & fusion.

### Borderlessness in the wider context

As I remarked earlier, we need to fuse borders between several disciplines, including those in natural sciences & social sciences. For this, we need to change our culture. We need to ensure that our mind moves through diverse disciplines in a seamless way. The ability to correlate and link the non-obvious can lead to major breakthroughs. Consider the issue of self-organisation in molecular systems by using molecular recognition. The organisation of molecules finally determines the properties and functions. But is this not what we want in creating modern management structures to derive a specific end objective, or an organisational goal, or a function? Innovative efforts have been made recently to create flexible management structures by using the concepts of self-organisation in chemical and biological systems. It is indeed fascinating that the chemistry of the non-covalent band, or supramolecular chemistry, is being used to create modern management systems. This is a splendid example of borderless thinking. We need more of it.

We need to take this concept of borderlessness further in India. For instance, we need to become borderless by creating knowledge networks between the formal systems of innovation, such as in our universities and national laboratories and also the informal systems of innovation, which are represented by our traditional knowledge, community knowledge etc which has been built in India for centuries. Again, for freeing these borders, we will also require an attitude of mind and also understanding the language of non-formal innovators. This again is as difficult a language barrier, as between a physicist and the biologist that I referred to earlier. I find that opportunities for India are enormous.

Let us take the case of traditional medicine and our practice of Ayurveda. CSIR & Arya Vaidyashala in Kottakal signed a memorandum of understanding. Someone described this as a unique event, since it was an attempt to create the fusion of modern science & traditional knowledge & wisdom. But this is only a small beginning in a much larger movement of creating a borderless world. We need to multiply such efforts.

**Creating borderless communities : some problems**

Forging partnerships between practitioners of different disciplines is not easy. We all live in a world of very high specialization. This automatically implies that we are continuously erecting our own new boundaries, creating our own small clubs and generating our own special language and jargon all the time. On the other hand, borderlessness implies interconnectedness. There itself lies the contradiction! Taking care of these contradictions is the biggest challenge we face in creating borderless science.

The essence of the issue can be highlighted by looking at the partnership between physics and biology. Frauenfelder and Berg edited a special issue of *Physics Today* in 1994 that dealt exclusively with the emerging new relations between physics and biology. They said "interface between physics and biology...is a cross field endeavour to which physicists can make major contributions. But to do so, they need to learn enough biology to be able to talk with biologists and to distinguish problems that are central from those that are peripheral. Since much of biology is descriptive, the physicist has a strong advantage: It is much easier for a physicist to learn biology than for a biologist to learn physics". May be my biologist friend present here will not agree with me but you can see the essence of the underlying problem in forging these partnerships, anyway!

The problem of the language and the cultural barriers between different disciplines is a serious one. Learning the language from another discipline and also teaching the language to practitioners of another discipline is not easy. Only those scientists, who have dared to learn other skills and languages from adjacent disciplines will eventually make a mark. Interdisciplinary scientists need to be great communicators. They will have to constantly exchange information in a "jargonless" way and also pass on their infectious enthusiasm by communicating skillfully.

There are many barriers to becoming borderless. There is a serious problem about the peer recognition for those who work in interdisciplinary areas. For instance, when it comes to the selection of Fellows of learned academies of sciences & engineering, it is seen that engineers and scientists, who are working on borders have difficulty in getting recognition. Invariably, they fall between stools. Thus somebody working in biomedical electronics gets considered seriously neither in medical sciences nor in engineering sciences committees. Thus they fall between stools. This is truly demotivating. I am afraid our academies have still not solved this problem.

As innovator is defined as one, who does not know that it cannot be done. Invariably, individuals who are unfamiliar with the discipline are also ones, who do not know that things cannot be done. Probably it is these individuals who will be able to give us conceptual breakthroughs through their unconventional thinking. Should we not, therefore, organise unconventional fora, where only club members belonging to a single discipline do not meet but those in seemingly unrelated disciplines meet?

I was recently attending the meeting of a science academy, where a number of researchers were presenting their research findings. Many of them took up problems that could be solved but not those that needed to be solved. I do believe that that we need to organise major discussion groups, which would deal with unresolved problems in different branches of science. We should invite here people from diverse disciplines. I am sure breakthrough suggestions will come from those, whose minds are uninhibited,

*(Contd. on page 18)*

# Educatio India — 2

### Number of Teachers by Type of Institution

*All In*

| *Type* | *1961* | *1971* | *1981* | *1986* | *1991* | *1995* | *1996* | *19* |
|---|---|---|---|---|---|---|---|---|
| Pre-Primary Schools | — | 8338 | 14535 | 20332 | 23337 | NA | NA | N |
| Primary Schools | 741515 | 1059950 | 1363217 | 1495812 | 1616020 | 1714395 | 1740436 | 17897 |
| Middle Schools | 345228 | 637569 | 851527 | 968348 | 1072911 | 1122436 | 1164734 | 11958 |
| High/Higher Secondary Schools | 296305 | 629200 | 912129 | 1131505 | 1334745 | 1445696 | 1493251 | 154236 |
| Vocational and other Education at School Level | — | 33223 | 105362 | 226325 | NA | NA | NA | N |
| **Post-Secondary (but below Degree level)** | | | | | | | | |
| General Education** | — | 9032 | 14306 | 18916 | @ | @ | @ | |
| Professional/Tech Education | — | 33588 | 39108 | 44001 | NA | NA | NA | N |
| **Graduate and above** | | | | | | | | |
| General Education | 36170 | 91297 | 137351 | 171780 | NA | NA | NA | N |
| Professional/Tech. Education/Special Education | 20470 | 39650 | 53201 | 54498 | NA | NA | NA | N |
| University Teaching Deptt. and other National Importance Research Institutions | 5589 | 16314 | 26661 | 37472 | NA | NA | NA | N |
| Grand Total | 1445277 | 2558161 | 3517397 | 4168989 | NA | NA | NA | N |

*Includes Intermediate and 10+2 stage Schools.

**Pre-Degree and Junior Colleges.

@Includes Teachers in High/Higher Secondary Schools.

### Number of Female Teachers by Type of Institution

*All India*

| *Type* | *1961* | *1971* | *1981* | *1986* | *1991* | *1995* | *1996* | *1997* |
|---|---|---|---|---|---|---|---|---|
| Pre-Primary Schools | — | 7339 | 12328 | 18925 | 21622 | NA | NA | NA |
| Primary Schools | 126788 | 224610 | 341942 | 401644 | 472506 | 533117 | 553166 | 584953 |
| Middle Schools | 83532 | 174506 | 253336 | 305140 | 356480 | 390249 | 408975 | 427754 |
| High/Higher Secondary Schools | 62347 | 155424 | 254290 | 338802 | 417444 | 489812 | 510807 | 538989 |
| Vocational and other Education at School Level | — | 6498 | 28657 | 80757 | NA | NA | NA | NA |
| **Post-Secondary (but below Degree level)** | | | | | | | | |
| General Education** | — | 1596 | 3112 | 4147 | @ | @ | @ | @ |
| Professional/Tech Education | — | 3932 | 5500 | 6639 | NA | NA | NA | NA |
| **Graduate and above** | | | | | | | | |
| General Education | 5370 | 17991 | 31300 | 43137 | NA | NA | NA | NA |
| Professional/Tech. Education/Special Education | 2187 | 4438 | 7961 | 9227 | NA | NA | NA | NA |
| University Teaching Deptt. and other National Importance Research Institutions | 275 | 1281 | 2966 | 4947 | NA | NA | NA | NA |
| Grand Total | 280499 | 597615 | 941392 | 1213365 | NA | NA | NA | NA |

*Source : Manpower Profile India Yearbook 1998,* Institute of Applied Manpower Research, New Delhi.

*(Contd. from page 15)*

namely the participants from the adjacent disciplines.

Modern information technology can play a crucial role in creating a borderless world. Intranet provides connectivity of minds within organisations. Brainstorming to generate new ideas used to take place in confines of time & space with a narrow range of specialists. Now intranet connectivity within an organisation allows borderless thinking, since people from the entire organisation, irrespective of their narrow specialisation, can participate in brainstorming, removing the constraints of time, space & specialisation.

We, in India need to seriously address several issues that hinder borderlessness. They include rigid academic curricula, hierarchical structures in management, etc. Our systems promote inhibition and imitation rather than innovation. It is only in an environment, which fosters innovation, that borderless thinking can flourish. Using information technology to promote Indian knowledge networks will help hugely in promoting borderlessness.

### The final challenge

The leadership in science tomorrow will rest with those who are daring to travel the intellectual path by recognising the key role of cross-disciplinary partnership between scientists and engineers from different disciplines. Advances will be the sum total of numerous creative ideas and interdisciplinary cooperation. In industry, individuals with diverse scientific and technical backgrounds tend to work together in a mission mode. The driving force for industry is continuous innovation to displace one's own product by oneself—with the well known fear of someone else displacing it otherwise for them. Unfortunately, the concept of interdisciplinary research and development has not gained as much ground in academia, especially in India, as one would have wished. And this is really sad because innovation is not a undimensional process. It is comparable to the intermeshing gears of a clock. The challenge before us is to make this intermeshing happen. This is really the core issue in building up the new India of our dreams.

Let borderlessness be the new Indian spirit in the next millennium in the broadest sense possible extending finally to the "Team India" spirit. It is then and then alone that India will occupy its rightful place in the community of nations.

## INDIAN STATISTICAL INSTITUTE

**Telephones : 577-8049, 577-8085 (3 lines),**
**577-2088, 577-7694 (4 lines),**
**577-3445, 577-8596 (2 lines),**
**Telegram : STATISTICA, CALCUTTA-700 035**
**Fax : +(91) (33) 577 6680**

**203 Barrackpore Trunk Road**
**Calcutta-700 035, India**

## M.N. MURTHY MEMORIAL PRIZE : 1998-99

### Announcement

The Indian Statistical Institute invites nominations for **M.N. MURTHY MEMORIAL PRIZE : 1998-99.** Conditions for the award and the manner in which nominations are to be made are set out below .

1. The prize will be awarded to a person generally working in India and who is less than 35 years of age on **01 July 1998.**
2. The prize will be awarded for the best research work done in India in published articles as well as accepted thesis in Applied Statistics which should include Sample Survey, Quality, Reliability & Operations Research (QROR), Experimental Design and Data Analysis and related fields
3. The prize will be awarded at the Institute's Annual Convocation, as far as possible.
4. The candidate recommended for the prize may have to come to Calcutta and present the results in a seminar at the Institute around the time of the convocation. The prize-winning candidate's travel to Calcutta by train and his/her stay in the Institute's campus in Calcutta will be supported by the Institute.
5. Applications/nominations for the prize may be made by the candidates themselves or by others and be forwarded through the Head of the Institution to which the candidate is affiliated, they should be accompanied by copies of the concerned research papers and the candidate's biodata (with proof of age) and sent to the address given below to reach by **15 February 1999.**
6. Candidates who have not applied or been nominated, may also be considered.
7. If no candidate is found suitable for the prize, no prize will be awarded.
8. The selection of the prize-winning candidate will be made by a committee of experts and is subject to ratification by the Academic Council of the Institute.

**Address for sending applications/nominations :**

**Director**
**(M.N. Murthy Memorial Prize)**
**Indian Statistical Institute**
**203, Barrackpore Trunk Road, Calcutta-700 035.**

# CAMPUS NEWS

## Seminar on Human Rights

A University Grants Commission (UGC) sponsored national seminar on "Human Rights in India : Issues and Perspectives" was recently held at Jamia Millia Islamia as part of their initiative to promote human rights education in universities and colleges.

The seminar was organised by the Department of Political Science, Jamia Millia Islamia and attended by Syed Sibte Razi, Mr. V.M. Tarakunde, Mr. Abid Hussain, Mr. Rajinder Sachar and other eminent personalities.

The UGC has also paid a grant to the Jamia Millia Islamia to start a postgraduate diploma course in human rights. Speaking on the occasion Mr. A.K. Dogra, Deputy Secretary, UGC, said "Education can play a crucial role in promoting the human rights culture in the country." "But unfortunately, the education system and more so the higher education system, except in the last few years, has hardly shown any credible signs of being a partner in the efforts of evolving human rights culture in the country," he added.

The UGC has decided to be a major national partner in the promotion of human rights culture in the country and has started considering it as one of the objectives of higher education.

Some of the universities which have received grants for holding seminars on their campuses in 1998-99 are Kuvempu University, Nagpur University, Jamia Hamdard, School of Legal Studies of Cochin University of Science and Technology, South Gujarat University, Sri Krishnadevaraya University, Annamalai University, Manipur University, Imphal and Pondicherry University.

Mr. Abid Hussain, former Ambassador to the United States, in his keynote address, stressed the importance of spreading human rights education in schools and colleges. Mr. Rajinder Sacchar, former Chief Justice of the Delhi High Court and former President, People's Union for Civil Liberties, also stressed the need for incorporating the concerns of human rights into the core fabric of the educational curriculum.

The UGC IX Plan Approach to Promotion of Human Rights Education (HRE) in Universities and Colleges will focus not only on creating knowledge about human rights but also providing an understanding as to how human rights can easily become vulnerable to abuse of various structures and processes of power.

Some more colleges/universities where such seminars will be held in the current year are Government Arts College, Tiruvannamalai; Government Arts College, Tiruvannamalai; Government Postgraduate College, Hisar, B.S. M. College, Roorkee; St. Johns College, Agra, R.R.P.G. College, Amethi; Savitri College, Ajmer; A.N. College, Patna and Arya College, Ludhiana.

## Delhi-Brighton Varsities Tie-Up

The Delhi University (DU) as part of its platinum jubilee celebrations this year is reported to have launched a mega hi-tech socio-intellectual project in collaboration with the University of Brighton (UK). The project termed as 'European Union-India Cross Cultural Innovation network is a culmination of the belief that fostering of proactive entrepreneurial culture warrants the establishment of a direct relationship between university and industrial applications.

The formalities and various details were finalised during the recent visit of Prof. Grodon H. Bull, Dean-Faculty of Information and Technology, Brighton University (UK). The Power Ministry, which has been convinced of the Utility and importance of the project, has sanctioned Rs. 3 crores for the same.

"Amongst the sundry pathfinding projects undertaken by the DU this innovative project is aimed at the promulgation and fulfilment of three basic ideas," said Mr. Sydney R. Rebeiro, Dean Alumni Affairs, DU.

"The first step involves a shift from the stress on the academics of various courses being pursued by students in their existing forms towards a direction which would allow us to enter their innovative structure. For this the Brighton University is providing us with CD-ROMs for courses at the post graduate (PG) level," stated Mr. Rebeiro.

"The second step aims at understanding what software systems actually mean and how can they be evolved and developed so as to meet the needs of our multifaceted society. For this the base funds are coming from the European Union, which consists of five partners representing five diverse regions," he said.

"And lastly," he continued, "an attempt would be made to determine the impact of information technology on Indian culture and what it is doing to our society through exhaustive research and development processes."

For this, he informed, Mrs. S.Bakshi, the widow of late Mr. Vishwanathan Bakshi, has given Rs. 20 lakh and also her house at Shanti Niketan (House No. 6/22) in New Delhi would be donated to DU to be developed as a full fledged scientific information and research centre.

## Institutions for Ocean Research

The Union Government Department of Ocean Development is reported to have embarked upon identifying academic institutions, which could take up ocean-related research works and emerge as centres of excellence, said Dr. A.E. Muthunayagam, Secretary, Department of Ocean Development. He was inaugurating the Ocean Science and Technology Cell (OSTC) at the Department of Earth Sciences at Tamil University, which is one of the five institutions already selected by the Department of Ocean Development. Dr. Muthunayagam said after the law of sea had come into existence, every State was getting an exclusive economic zone.

This year, the department would open nine OSTCs in nine academic institutions.

While the OSTC inaugurated at Tamil University will deal with 'beach placers', two OSTCs opened each at Bavanagar and Berampur will deal with coastal ecology.

## Course in Human Rights

A course in human rights is proposed to be started by the Indira Gandhi National Open University (IGNOU) from July 1999.

It is meant for police inspectors and constables, industry and agriculture workers, doctors, non-governmental organisations, functionaries, extension workers in various sectors of development.

It will comprise three courses —human rights society and development, human rights and India and human rights : What can we do?

"The third course is unique. It is a work book of exercises to be designed in consultation with various NGOs so that field insights can be ploughed into the learning system."

"A compulsory application-oriented course in human rights studies of eight credits is also being prepared for the students pursuing IGNOU's bachelors degree." IGNOU had also prepared 10 videos and three audios relating to human rights.

IGNOU's human rights project has also undertaken collaboration exercises for action projects, through NGOs active in these fields, on the right to information.

Two field locations — Kalahandi (Orissa) and Gulbarga (Karnataka) — have been identified. An agreement has been signed with an NGO, Friends Association for Rural Reconstruction, working in Kalahandi.

The human rights project was created on April 1, 1997, at IGNOU with a Rs. 30.45 lakh government fund.

"The purpose is to prepare course material and dissemination of public information to make people functionally literate and aware about their rights."

## The Youngest Graduate

Tathagat Avatar Tulsi, a child prodigy, is reported to have once again broken the world record by passing the Bachelor of Science (physics honours) examination from the Science College of Patna University at the age 11 years and two months.

Tathagat, who is called a mathematics wizard, has surpassed the record of Jay Luo of Garden City, USA. The latter had succeeded in finding his place in the Guinness Book of World Records by graduating in science from Boise State University, Idaho. Jay Luo had graduated at the age of 12 years, one month and 12 days.

Interestingly, Tathagat passed his B.Sc examination from Patna University by appearing simultaneously in three parts of the graduation stage. He secured over 70 per cent marks.

Tathagat had also found a place in the Guinness Book of World Records in 1997 by clearing the CBSE examination at the age of nine years and six months. Tathagat now hopes to pass the M.Sc. exam next year.

## North Zone Inter-Varsity Youth Festival

The North Zone Inter-University Youth Festival was recently held at the Punjab Agricultural University, Ludhiana. The Festival was inaugurated by Sh. S.K. Ahluwalia, Director North Zone Cultural Centre, Patiala in the presence of Dr. G.S. Kalkat, Vice-Chancellor, Dr. M.S. Bajwa, Director Student's Welfare, Dr. Balwant Singh, Convenor and Sh. M.S. Grewal, Welfare Officer.

The programme started with the classical dances of different universities. This was followed by competitions in the events of Western Solo, Skit, One Act Play, Mime Classical Instrumental (Percussion and Non-Percussion), Quiz, Painting, Cartooning, Group Songs (Indian & Western), Light Vocal, Classical Vocal (Solo), Debate, Poster and Collage.

At the Valedictory Function, presided over by Dr. G.S. Kalkat, Vice-Chancellor, PAU, the results were announced and the trophies awarded to the winning teams. Punjab Agricultural University, Ludhiana, bagged the Overall Championship Trophy while the Overall Runners Up Trophy went to Guru Nanak Dev University, Amritsar.

## RESULTS

### 1. MUSIC

**a) Classical Vocal Hindustani/ Karnatak**

1. Dyalbagh Univ., Agra
2. Punjab Agri Univ., Ludhiana
3. H.P. Univ., Shimla

**b) Classical Instrumental (Solo Percussion)**

1. GNDU, Amritsar
2. Dyalbagh Univ., Agra
3. Punjabi Univ., Patiala

**c) Classical Instrumental (Solo Non-Percussion)**

1. Kumaun Univ., Nainital
2. Dyalbagh Univ., Agra
3. GNDU, Amritsar, M.J.P.R., Bareilly

**d) Light Vocal (Indian)**

1. JMI, Delhi
2. HP Univ., Shimla
3. Dyalbagh Univ., Agra

**e) Group Song (Indian)**

1. Dyalbagh Univ., Agra
2. GNDU, Amritsar
3. Punjab Agril Univ., Ludhiana

**f) Group Song (Western)**

1. Dyalbagh Univ., Agra
2. PAU, Ludhiana

**g) Western Song (Solo)**

1. PAU, Ludhiana
2. Dyalbagh Univ., Agra
3. GNDU, Amritsar

**h) Western Solo**

1. PAU, Ludhiana
2. DEI, Agra
3. GNDU, Amritsar

### 2. DANCE

**a) Folk/Tribal Dance**

1. Pbi.Univ., Patiala
2. K.U., Kurukshetra
3. PAU, Ludhiana

**b) Classical Dance**

1. Pbi. Univ., Patiala
2. PU, Chandigarh
3. PAU, Ludhiana

### 3. LITERARY EVENTS

**a) Quiz**

1. PAU, Ludhiana
2. HPKVV, Palampur
3. GNDU, Amritsar

**b) Elocution**

1. Pbi. Univ., Patiala
2. GNDU, Amritsar
3. Dyalbagh, Agra,
   PAU, Ludhiana

**c) Debate**

1. Pbi. Univ., Patiala
2. GNDU, Amritsar
3. PAU, Ludhiana

### 4. THEATRE

**a) One Act Play**

1. GNDU, Amritsar
2. PAU, Ludhiana
3. Aligarh Muslim Univ.

**b) Skit**

1. PAU, Ludhiana
2. GNDU, Amritsar
3. HAU, Hissar,
   Aligarh Muslim Univ.

**c) Mime**

1. GNDU, Amritsar
2. Pbi. Univ., Patiala
3. PAU, Ludhiana,
   HPKVV, Palampur

### 5. FINE ARTS

**a) On the spot painting**

1. JMI, New Delhi
2. Rohelkhand Univ., Bareilly
3. MDU, Rohtak

**b) Collage**

1. PU, Chandigarh
2. KU, Kurukshetra
3. PAU, Ludhiana

**c) Poster Making**

1. Kashmir University, Srinagar
2. PAU, Ludhiana
3. Dyalbagh, Agra

**d) Clay Modelling**

1. Pbi. Univ., Patiala
2. Dyalbagh, Agra
3. JMI, New Delhi

**e) Cartooning**

1. Dyalbagh, Agra
2. PAU, Ludhiana
3. JMI, New Delhi

**f) Rangoli**

1. PAU, Ludhiana
2. BRAU, Agra
3. MDU, Rohtak

**6. CULTURAL PROCESSION**

1. Kumaun Univ., Nainital
2. KU, Kurukshetra
3. Rohelkhand Univ., Bareilly

**Music Championship**
Dayalbagh Educational Institute, Agra

**Dance Championship**
Punjabi Univ., Patiala

**Theatre Championship**
GNDU, Amritsar

**Literary Activities**
P.A.U., Ludhiana

**Fine Arts** — PAU, Ludhiana

**Runners Up Overall**
GNDU, Amritsar

**Overall Championship**
PAU, Ludhiana.

## 50 Years of Declaration of Human Rights

The Department of Political Science, Arunachal University recently organised a discussion on Human Rights as a part of the observation of 50 Years of adoption of Universal Declaration of Human Rights in the UN General Assembly. The discussion dealt at length various provisions of human rights as incorporated in all the thirty articles of the declaration. It centred round all the important human rights issues ranging from civil and political rights to social, economic and cultural rights with particular reference to the rights of women, children, aged, socially disadvantaged and the indigenous people. The speakers advocated greater sensitisation of the people at large particularly the decision makers, police and other law enforcing agencies, legislatures, academia, etc to the human rights issues. The role of NGOs in taking the issues down to the people and playing the role of a catalyst in development of mechanism for protection, preservation and promotion of human rights in society were particularly highlighted.

## One Year of NSOU

To mark the completion of first year, the Netaji Subhas Open University (NSOU), Calcutta, recently celebrated the Foundation Day. Dr. A.R. Kidwai, Governor of West Bengal, inaugurated the function while Sri Satya Sadhan Chakraborty, Minister-in-Charge of Higher Education Deptt., West Bengal, and Dr. A.W. Khan, Vice-Chancellor of IGNOU were the guest of honour. Dy High Commissioner of Bangladesh was a Special Guest. Others who were present included Chancellors, VCs of other universities of West Bengal and Principals of colleges. A seminar on "Distance Education" was also organised as part of the celebrations.

Established under Act XIX of 1997 of West Bengal and recognised by UGC, the university started its academic session from July '98 with B.A./B.Com courses. The first semester session is running with about 500 students while the next session is due to start from Jan. '99. 35 study centres have already been established covering all the 18 districts of the state including Calcutta.

## Technomathematics Research Foundation

The Technomathematics Research Foundation (TMRF), Kolhapur was founded with the main threefold objectives : To promote the use of mathematics in industry, to educate "industrial mathematicians" and to operate on a Indian Scale. Purpose of the TMRF is the promotion of basic research close to application of applied research as well as consultancy on all significant fields of industrial mathematics.

Detailed objectives of the Foundation are to enhance and promote the application of mathematics in industrial and "real world" problems; to establish cooperation with Indian and International academic and industrial bodies; to provide scholarships for young students to do research in the field of industrial mathematics; to organize national and international level conferences/modelling workshops, seminars in any area of industrial mathematics; to organize and promote activity groups and advance programmes in industrial mathematics; to print and publish books, articles, translations, model lessons suitable for different age groups and academic levels; and to assist members to liaise with industry and academic institutions.

The current activities being undertaken are Industrial co-operation, R&D projects, and Mathematical modelling seminars for schools & colleges.

The projects undertaken include Applications of Mathematics to Fiber Industries [Industrial Project]; Survey of industrial problems in Maharashtra State [NISSAT, GoI]; Bus scheduling problem for Kolhapur Municipal Transport [NBHM, DAE]; Non-linear constraints solving in science & engineering [TWAS, Italy]; Modelling & scientific computing of industrial problems [DST, GoI]; and Component of Hilbert schemes [TWAS, Italy].

The Foundation office is located at 204/17 KH, Durgadatt, New Shahupuri, Kolhapur-416 001.

## Ayurveda for Foreigners

The Gujarat Ayurved University Jamnagar, has introduced some courses of Ayurveda exclusively for the foreign students. These include (i) Bachelor of Ayurveda Medicine and Surgery (B.A.M.S.) Degree Course; (ii) Doctor of Medicine in Ayurveda [M.D. (Ay)]; (iii) Doctor of Philosophy (Ph.D.); (iv) Diploma Course in Ayurveda; (v) Introductory Course in Ayurveda; (vi) Certificate course in Panchakarma; (vii) Certificate Course in Ksharasutra; (viii) Diploma in Yoga and Naturopathy; and (ix) Certificate Course in Yoga.

Details regarding admission eligibility, duration, fee etc may be obtained from the Registrar, Gujarat Ayurved University, Administrative Bhavan, Post Bag No. 4, Jamnagar-361 008 (Gujarat), India.

## Seminar on Human Rights Education

The Department of Political Science of Arunachal University proposes to organise a two day seminar on "Human Rights and Human Rights Education : Issues and Challenges in North East" on 4-5 February, 1999. The sub-themes of the seminar are (i) Human Rights : Historical, Political, Social, Cultural, Economic and Environmental Perspectives; (ii) Human Rights : Issues, Dimensions and Challenges in North-East (with particular reference to Arunachal Pradesh) and (iii) Human Rights Education : Its relevance and Appropriate level of Introduction in North East.

Further details may be had from Dr. Arun Kr. Singh, Director, UGC Seminar, Department of Political Science, Arunachal University, Itanagar.

## Ugadi Purashkar

Prof. D. Panduranga Rao, Director, Institute of Transport Management, Andhra University, Visakhapatnam has been conferred with "UGADI PURASHKAR by Madras Telugu Academy for the year 1998" for his contributions in the field of Transport Sector.

## Vyas Samman 1998

The K.K. Birla Foundation has instituted the Vyas Samman (carrying an award money of Rs. 2.50 lakhs) which is given to an outstanding Hindi literary work of an Indian citizen published during the last 10 years. The work may belong to any genre of literary writing such as poetry, novel, short stories, play, history of language and/or literature, criticism, essays biography etc. There are a number of high level awards in Hindi but they are generally author-centered while the Vyas Samman is given on a particular work.

After considering the works published during 1988-1997 the novel *Paanch Aangnon Wala Ghar* of Shri Govind Misra has been selected for the eighth Vyas Samman (for 1998).

*'Paanch Aangnon Wala Ghar'* (1995) is not only a novel of the disintegration of "family", the basic life-unit of the Indian society but is also an account of the gradual attrition of human values which causes elemental change in any clime and culture.

It is not a novel seeking the revivification of the joint family but is a work reflecting on the destruction of the values that it connoted, the resultant vacuum that can never be filled, a vacuum that only grows. A vacuum that arises not only because of the non existent 'family' but also the fear and greed that are rampant in every sphere. The novel devotes itself extensively and sympathetically to a wide spectrum of human relationships.

## GNDU on the Web

For providing information around the world on the academic activities of the university, the web page of Guru Nanak Dev University was recently inaugurated in Amritsar by the Secretary, Higher Eduation of Punjab, Mr. G.P.S. Shahi.

On the occasion, Mr. Shahi said information was a priceless commodity in this competitive world and to meet the need of the hour computer training should be provided to students at the school level. Nations and societies fought to get information before one another, and this was made possible by the rapid exchange of information around the world. The Internet was undoubtedly, the most significant to this effect, he added.

The Vice-Chancellor, Dr. Harbhajan Singh Soch, giving details about the university web page, said the potential use of information technology in the education sector had established Internet connection on the university campus last year. He said keeping in view the development in the field of information technology the need of web page was urgently felt.

## On Development in Western India

The School of Social Sciences, jointly with School of Earth Sciences, Swami Ramanand Teerth Marathwada University, Nanded proposes to organise the National Seminar on Common Property Resources and Planned Development in Western India : Challenges and Prospects, on January 19-21, 1999. The sub-themes of the seminar are : (i) Rural Sector and Development; (ii) Tribal Sector and Development; (iii) Environment and Development; (iv) Water (Surface and Subsurface) and Development, (v) NGOs and Development; and (vi) Gender and Development.

Eminent scientists, academicians and senior government officers working in the reputed organisations/institutions in the states of Maharashtra, Gujarat and Goa are expected to present papers and participate in the seminar. Further details may be had from Dr. B.C. Barik, Professor and Head, School of Social Sciences, S.R.T.M. University, Nanded-431 606.

### We Congratulate...

**1. Prof. Kanta Ahuja who has been appointed Vice-Chancellor of the Rajasthan University, Jaipur.**

**2. Prof. K.K. Aggarwal who has been appointed Vice-Chancellor of the newly established Indraprastha Vishwavidyalaya, New Delhi.**

**3. Prof. Sushila Vyas who has been appointed as the President of Banasthali Vidyapith, Banasthali (Raj.)**

**4. Prof. Chitra Purohit who has been appointed as the Director of Banasthali Vidyapith, Banasthali (Raj.)**

# *News from Agricultural Universities*

## Agro-Techniques in Horticultural Crops

A two-week training course on agro-techniques in horticultural crops recently concluded at CCS Haryana Agricultural University with a note that there was need to apprise all strata of the farming community of the latest farm techniques.

The course conducted by the Academy of Agricultural Research and Education Management (AAREM) of the University was aimed at enlightening the development officers of the State Horticulture Department with the techniques useful to harness good production of horticultural crops including fruits, flowers and vegetables.

Mr. J.L. Dalal, Former Director, Department of Agriculture, Haryana who was the chief guest, distributed certificates to the successful participants of the training. Speaking on the occasion, he expressed at the ignorance prevailing among the farmers about the cultivation practices of fruits and vegetables. He said even after so much development that had taken place in agriculture, the farmers were practising inappropriate practices. Citing example of the sowing of muskmelon and most of the vegetables being done by the farmers by applying broadcast method, he called upon the horticulture development officers to educate them about the correct cropping practices, so that they could harvest good crops and earn good profit as well.

Mr. Dalal, on the basis of his personal experience, said that farmers learn more quickly by demonstrations than arguments. Therefore, he pleaded the personnel engaged in the dissemination of technology to develop rapport with the farmers and lay demonstrations of the new technology at their farms.

Dr. I.J. Singh, Director of the Academy said that the Academy had taken significant strides in training the agriculture human resource of the country. He said that the Academy established under the World Bank project had conducted 34 such trainings besides about 30 for foreign nationals, during the past nearly four years. He said in the present training, the participants were enlightened on all major aspects of horticulture and apprised of the new developments in this field.

# *News from UGC*

## Countrywide Classroom Programme

Between 8th and 14th January, 1999 the following schedule of telecast on higher education through INSAT-1D under the auspices of the University Grants Commission will be observed. The programmes are telecast on the Doordarshan's National Network from 9.30 to 10.00 a.m. every day except on Saturdays & Sundays. These programmes are also telecast on Doordarshan's National Network from 6.00 to 6.30 a.m. two days a week i.e. on Saturdays and Sundays. On DD2 International Programme will be shown at 11.00 to 12.00 hours on Saturdays only.

Hindi Programmes are being telecast on Mondays to Fridays from 6.00 to 6.30 a.m.

**8.1.99**

"Perspectives in Modern English Literature — Modern Drama-2 : Mirrors of Our Lives"

**9.1.99**

"Comet Charisma-4 (1995-1997)"

"Fifty Years of India — Indian Economy-1"

"International Programmes"

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# *News from Abroad*

## Facing the Global Century

The Annual Conference of the Comparative and International Education Society (CIES), will be held at Ontario Institute for Studies in Education of the University of Toronto (OISE/UT), Toronto, on April 14-18, 1999.

The theme of the conference is "Facing the Global Century : Education and Civilization Interaction."

The conference is intended to stimulate broad thinking about civilizational interaction in the course of world history, and its significance for education. A wide range of themes relating education to cultural and civilizational issues will be encouraged, and the concept of civilization itself may be challenged. For example, are Asian cultures and philosophies part of one or several civilizations? What differential kinds of interaction may they have with those of Latin America, Europe, Africa, the Middle East and North America? There may also be interesting interactions among Asian ways of thinking and feminist epistemology, the ideas of indigenous peoples and particular religious faiths.

Teachers and teaching will be a special focus of this conference, since it is teachers who hold the primary responsibility for cultural transmission and civilizational change within their societies. How is the image and role of the teacher viewed differently in different civilizations? What special challenges do teachers face as civilizations come into interaction, and how are they responding to them? How can teacher professionalism be enhanced within the global paradigm that emerges in the early 21st century?

For logistics information, visit the conference website at http//: edu.oise.utoronto.ca/depts/ctl/cidec/cies99 or by e-mail:cies99@oise.utoronto.ca

## Conference on Teacher Education

An International Conference on Teacher Education (ICTED), will be held on February 22-24, 1999, at Hong Kong Institute of Education, Hong Kong. The theme of the Conference is "Teaching Effectiveness and Teacher Development in the New Century." Scholars, teaching professionals, school teachers and administrators, policymakers and student teachers are invited from all over the world to participate.

The topics proposed to be discussed include Pre-service and In-service Teacher Education for Teacher Development and Effectivess; School-based Staff Development for Professional Growth, Teaching Performance and School Improvement; Contextual Factors as Related to Teaching Process and Teacher Development; Teacher Study and Personal Determinants of Teaching Effectiveness; Theoretical and Methodological Developments for Research, Assessment and Practice; Teacher Education and Teaching Effectiveness in the Subject Areas; Teacher Education and Megatrends in Information Technology; and Teacher Effectiveness and Quality Assurance in Higher Education.

For full details and logistics, visit the Conference website at http://www.ied.edu.hk/crd/icted/icted.htm. Inquiries : Organising Committee of ICTED 1999, c/o The Centre for Research & Development, Hong Kong Institute of Education, 10 Lo Ping Road, Tai Po, New Territories, Hong Kong SAR, China. Tel : 852-2948-7732; fax : 852-2948-7697; email:icted99@crd.ied.edu.hk.

# An Outstanding Publication

R.P. Singh*

**Nirmala Jeyaraj, Ed. Higher Education : Vision and Mission for Twenty-first Century. Madurai, Lady Dock College, 1998. Pp. 359. Rs. 125/-.**

The foreword considers the present publication "an important book." It is a compilation of papers presented at the consultation by eminent educationists — 3 former Vice Chancellors, 2 present VCs, a Joint Secretary from UGC and teachers in institutions of higher education in South India. The book also contains a report and recommendations of the Consultation. The papers cover a wide range of topics relating to issues, challenges and opportunities in higher education. And ali this to have an association with Lady Doak College's Golden Jubilee Celebrations makes this volume even more valuable.

The major issues addressed by the present publication are as follows : 1) Developing academic leadership, 2) Development of women's education, 3) Women colleges, 4) Vocationalisation of higher education, 5) Impact of Infotech, 6) Future orientation, 7) Value education, 8) Institutional evaluation : Assessment and Accreditation; and 9) Financing higher education.

The book is divided into 4 parts : the first part contains 4 papers presented by Chief Guests — each one of which could be classed as research document; the second part carries 12 papers presented by resource persons which again are excellent pieces of thematic writing — particularly the one on College Autonomy by M A Thangraj. The papers by Antony Stella on Institutional evaluation and on Future Trends and Priorities by Anandhavalli Mahadevan deserve special attention.

The third part of the book carries 14 papers in all by participants which have equal merit. Attention is invited towards 2 papers in particular — Privatisation of higher education by S Mumtaj and the other is Role of a Teacher in Higher Education by Roopa Sundaramony. The ones not mentioned too carry seminal ideas and should not be overlooked.

The last part of the book pertains to the report of the Seminar and recommendations.

Having stated briefly the purpose of starting/opening Christian Colleges in India and the grounds for their popular support, the report stresses the importance of excellence in higher education. The top priority is to be accorded to attaining international standards in higher education. On the basis of a process called "continuous self-evaluation of each and every department in the College, a Plan of Action is to be prepared for further growth and development. The challenges to be met included : 1) appointment of competent faculty; 2) appropriate curriculum-cum-evaluation packages to be prepared; 3) development of modular courses of study; 4) Constantly updating of libraries and of other facilities and equipment; 5) lastly concern is expressed regarding institutions which failed to come up to UGC criteria.

On the point of vocationalisation of higher education particular illustrations are given from institutes of higher education in the US and Japan etc. In India too market placement surveys are found essential to add to the existing repertoire of vocational courses.

In the face of rising tendency towards drug abuse, communal violence and crime against women what one needs urgently is value-based education. Christian colleges are apparently more conscious about their social and rural obligations. Efforts in these directions are both relevant and essential. Through Participatory Learning and Action (PLA) deprived communities in poor habitations deserve proper care. This is the essence of Christian charity.

The coming of the next century is identifiable with the advancement and spread of information technology. The UGC has already developed appropriate computer software e.g. like question banks, and in order to take advantage the autonomous colleges have to develop suitable infrastructure and learning traditions.

Considering the likely expansion in tertiary sector the autonomous colleges and deemed universities have a role in creating centres of excellence, offering courses in employable skills etc. The report talks of taking help from the National Accreditation and Assessment Council (NAAC) for evolving procedures to improve performance in the academic areas.

On the whole a worthwhile effort and outstanding production.

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**Former Dean (Research) NCERT, A-4/206, Kalkaji Extn. New Delhi-110019.*

# THESES OF THE MONTH

### A list of doctoral theses accepted by Indian Universities (October-November)

## HUMANITIES

### Fine Arts

*Drawing & Painting*

1. **Dravid, Pushpa. Prof Nicholas Roerich and his Himalayan paintings.** (Prof Choodamani Nandagopal and Prof M S Nanjunda Rao), Department of Fine Arts, Bangalore University, Bangalore.

*Music*

1. **Reman Deep Kaur. Malwa kshetra ka sanskritik tatha sangitik adhyayan : Lok shalli kee parishthboomi per.** Department of Performing Arts, Himachal Pradesh University, Shimla.

2. **Verma, Anu. Hindustani sangit ke saidhantik evam prayog paksh mein adhunik granthkaron ka yogdan, 1850-1990.** Department of Performing Arts, Himachal Pradesh University, Shimla.

### Geography

1. **Kathait, Jaswant Singh. Ghati nagar ke roop mein Srinagar, Garhwal kee akariki evam sanrachana.** (Dr M S S Rawat), Department of Geography, Hemwati Nandan Bahuguna Garhwal University, Srinagar.

### History

1. **Dinesh Kumar. Human resource development in Israel, 1948-83.** (Dr P C Jain), Centre for West Asian and African Studies, Jawaharlal Nehru University, New Delhi.

2. **Kandpal, Hirdyaram. Garhwal mein loktantra : Aitihasik adhyayan.** (Dr Atul Saklani), Department of History, Hemwati Nandan Bahuguna Garhwal University, Srinagar.

3. **Neena Kumari. Prarambhik upanishadon ka ek sanskritik adhyayan.** Department of History, Himachal Pradesh University, Shimla.

4. **Pandey, Alpana. Social changes in 17th and 18th century Andhra.** (Prof R Soma Reddy), Department of History, Osmania University, Hyderabad.

5. **Rattan Singh. Socio cultural history of Shimla Hill States and Sirmour during British time, 1815-1947.** Department of History, Himachal Pradesh University, Shimla.

6. **Samak, S G. Art and architecture of the Nayakas of Keladi with special reference to Kavaledurga and Nagara.** (Dr B R Keshava Murthy), Department of History, Bangalore University, Bangalore.

7. **Syam Sundar Raju, B. Vizianagaram zamindary in Colonial Andhra, 1802-1949.** (Prof M S R Anjaneyulu), Department of History, Andhra University, Waltair.

8. **Wahi, Prem. The history and contribution of the Elvinstife society.** (Dr L K Srivastava), Department of History, Hemwati Nandan Bahuguna Garhwal University, Srinagar.

### Language & Literature

*English*

1. **Latha, S. Novels of Rabindranath Tagore : A study in interpersonal relationship.** (Prof S Laxmana Murthy), Department of English, Kakatiya University, Warangal.

2. **Mallesham, K. The waste land in the light of Indian poetics.** (Dr D Kanaka Durga), Department of English, Osmania University, Hyderabad.

3. **Naidu, Barbra. An investigation into the teaching of prose at undergraduate level with reference to the educational, literary and language learning aspects.** (Dr M A Yadugiri), Department of English, Bangalore University, Bangalore.

4. **Radha. The politics of race and gender : A study of selected novels of Nadine Gordimer and Bessie Head.** (Prof Bala Kothandaraman), Department of English, Osmania University, Hyderabad.

5. **Shivaprakash, H S. Metaphor and paradox : Two modes of expression in Vachana poetry in English translation.** (Dr C N Srinath), Department of English, Bangalore University, Bangalore.

6. **Syamala, T Dashiell Hammett and the tradition of American detective fiction.** (Dr Tutun Mukherjee), Department of English, Osmania University, Hyderabad.

7. **Vashist, Uma Dutt. Ideas in the plays of T S Eliot.** Department of English, Himachal Pradesh University, Shimla.

*French*

1. **Chaudhary, Kiran. L'approcne communicative ETL' Enseignement/Apprentissage Du Fle Aux programmes De B A : En contexte Indien.** (Prof R Borges and Prof C Krishnamurthy), Centre of French Studies, Jawaharlal Nehru University, New Delhi.

*Hindi*

1. **Madhavi Naidu, K. Adhunik pariprekshya mein Jainendra Kumar ke upanyason ka anusheelan.** (Dr M Vimala), Department of Hindi, Bangalore University, Bangalore.

2. **Meena Kumari. Kathakar Rahul Sankrityayan kee samajik aitihasik drishti.** Department of Hindi, Himachal Pradesh University, Shimla.

3. **Pal, Chanderkanta. Vyangkar Sharad Joshi ka vyaktitva evam krititva : Ek anusheelan.** (Dr G D Tripathi), Department of Hindi, Devi Ahilya Vishwavidyalaya, Indore.

4. **Pandit, Sunita. Hazari Prasad Dwivedi aur Vidyaniwas Mishra ke atmaparak nibandhon ka tulanatmak adhyayan.** Department of Hindi, Himachal Pradesh University, Shimla.

5. **Rai, Vijay Laxmi. Hazari Prasad Dwivedi ke upanyason mein pratipadit samajik chintan.** (Dr K N Dubey), Department of Hindi, Rani Durgavati Vishwavidyalaya, Jabalpur.

6. **Ran Singh. Rajendra Yadav ke katha sahitya mein nari chitran.** Department of Hindi, Himachal Pradesh University, Shimla.

7. Sharma, Snehalata. Nirala ke kavya mein rashtriya chetana. (Dr T R Bhat), Department of Hindi, Karnatak University, Dharwad.

8. Singh, Geeta. Usha Priyamvada ke katha sahitya mein nari kee parikalpana. (Dr M Vimala), Department of Hindi, Bangalore University, Bangalore.

9. Tiwari, Malti. Swatantrayottar Hindi kavita mein rashtriya ekikaran kee abhivyakti. (Dr Hari Mohan), Department of Hindi, Hemwati Nandan Bahuguna Garhwal University, Srinagar.

10. Upadhyaya, Pramod. Hindi ke jasoosi upanyason mein manovaigyanikata evam samajikata. (Late Dr Premaswardutt Sharma), Department of Hindi, Devi Ahilya Vishwavidyalaya, Indore.

11. Upadhyaya, Rakhi. Pt Jugal Kishore Chaturvedi aur Hindi patrakarita. (Dr Madhu Sharma), Department of Hindi, Hemwati Nandan Bahuguna Garhwal University, Srinagar.

*Kannada*

1. Gayathri, N. Adhunika Kannada katha sahityada muru pramukha chaluvaligalalli stree vastu nirvahane. (Dr K Marulasiddappa), Department of Kannada, Bangalore University, Bangalore.

2. Giriyaiah, Mudala. Kannada kadambarigalalli Gandhi vadada prerane. (Dr Keshavasharma K), Department of Kannada, Kuvempu University, Shimoga.

3. Naik, Shridhar Venkataraman. Sahitya Veedikeyannerida Janapad prakaragalu : Ondu adhyayana. (Dr S V Ayyanagoudar), Department of Kannada, Karnatak University, Dharwad.

4. Prashantha Nayaka, G. K S Narasimhaswamy kavyada adhyayana. (Dr Siddhashrama C P), Department of Kannada, University of Mysore, Mysore.

5. Shivaramu, H S. Prof D Lingaiahnavara sahithya : Ondu adhyayana. (Dr Ganga Nayak K N), Department of Kannada, University of Mysore, Mysore.

6. Verma, Gayatridevi B. Feministic, indian, perspectives in the folk literature of Karnataka. (Dr Baswaraj Sabrad), Department of Kannada, Gulbarga University, Gulbarga.

*Sanskrit*

1. Barve, Jagrati. Narmada Puran ka sanskritik anusheelan. (Dr Mithilaprasad Tripathi), Department of Sanskrit, Devi Ahilya Vishwavidyalaya, Indore.

2. Narasimhachar, A Ananta. Dakshina Bharatiya, Visheshavagi Karnatakada Brahmanara samskaragala ondu vimarashatmaka adhyayana. (Dr Suganan Murthy), Department of Sanskrit, Bangalore University, Bangalore.

*Telugu*

1. Anand Kumar, G B. A portrait of Telugu Christian fiction. (Prof G Krupachary), Department of Telugu, Nagarjuna University, Nagarjunanagar.

2. Balreddy, S. Seela Veerraju rachanalu. Department of Telugu Literature, Potti Sreeramulu Telugu University, Hyderabad.

3. Govinda Reddy, V. Chittoor Zilla veedhi natakam : Oka pariseelana. Department of Telugu Literature, Potti Sreeramulu Telugu University, Hyderabad.

4. Narasimha Murthy, K. Telugu sahityamulo : Nrusimha vruttantam. (Dr P Jyothi), Department of Telugu, Kakatiya University, Warangal.

*Urdu*

1. Abdul Quadeer. The literary contribution of Raja Mehdi Ali Khan. (Dr S H H Aqeel Hashmi), Department of Urdu, Osmania University, Hyderabad.

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| | | | | | | | |
|---|---|---|---|---|---|---|---|
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| 11. | Agril. Botany | 3 | — | 1 | DT-A = 1<br>NT-B = 1 | — | — |
| 12. | Plant Pathology | 2 | 1 | — | DT-A = 1 | — | — |
| 13. | Agril. Entomology | 5 | 1 | 1 | DT-A = 1<br>NT-C = 1 | 1 | — |
| 14. | Animal Science and Dairy Science | 1 | 1(p) | — | — | — | — |
| 15. | Horticulture | 3 | 1 | — | DT-A = 1<br>NT-C = 1 | — | — |
| 16. | Agril. Economics | 4 | 1 | 1 | — | 2 | — |
| 17. | Agril. Extension | 2 | 1 | 1 | — | — | — |
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| 26. | Agronomy | 2 | — | — | NT-B = 1<br>NT-C = 1 | — | — |
| 27. | Agril. Entomology | 2 | — | — | — | 2 | — |
| 28. | Agril. Chemistry & Soil Science | 3 | — | — | NT-C = 1 | 2 | — |
| 29. | Horticulture | 1 | — | — | — | 1 | — |
| 30. | Plant Pathology | 1 | — | — | — | 1 | — |
| 31. | Agril. Economics | 4 | — | — | DT-A = 1<br>NT-B = 1<br>NT-D = 1 | 1 | — |
| 32. | Agril. Engineering | 1 | — | — | — | 1 | — |
| 33. | Office Superintendent<br>(Pay Scale Rs. 2000-60-2300-EB-75-3200-100-3500/-) | 4 | — | 1 | DT-A = 1<br>NT-C = 1 | 1 | — |
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| | | | | | | | |
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| 44. | Foreman Supervisor<br>(Pay Scale Rs. 1400-40-1800-EB-50-2300/-) | 1 | — | — | — | 1 | — |

*Note :* (A) — The posts marked as "*" are for exchange of point from ST to SC.

(B) Abbreviations (p) = Probable, SC = Scheduled Caste, ST = Scheduled Tribes, DT/NT = Denotified Tribes/Nomadic Tribes.

OBC = Other Backward Classes

SBC = Special Backward Classes.

**Qualifications and Experience for the posts Advertised**

**Posts at Sr. No. 1 to 8 : Asso. Prof./equivalent posts :** Ph.D. in respective subject with five years experience in teaching, research or extension education of which two years should be in the cadre of Assistant Professor or its equivalent.

OR

Master's degree in respective subject with seven years experience in teaching, research or extension education of which three years should be in the cadre of Assistant Professor or its equivalent.

**Posts at Sr. No. 9 to 23 : Asstt. Prof./equivalent posts :** Ph.D. in respective subject or Master's degree in the respective subject with two years experience in teaching, research or extension education.

**Post at Sr. No. 24 : Asstt. Prof. of Agril. Engg. — Computer Science :** Ph.D. in Computer Science/Computer Engineering/Computer Technology OR Master's degree in Computer Science/Computer Engineering/Computer Technology with two years experience in teaching, research or extension education.

**Post at Sr. No. 25 : Senior Research Assistant :** Master's degree in respective subject.

OR

Bachelor's degree in Ist Class with distinction, Atleast IInd Class Bachelor's degree with three years experience as Junior Research Assistant or its equivalent.

**Posts at Sr. No. 26 to 32 : Junior Research Assistant :** Bachelor's degree in the respective Faculty

**Post at Sr. No. 33 : Office Superintendent :** 1. A Bachelor's Degree of any Statutory University. Preference may be given to the candidates having degree in IInd Class.

2. Five years experience in the Office under the State Govt./Semi Govt. Organisation/Educational Institution/Corporation/Co-operative Organisation of which atleast three years experience should be not below the rank of Assistant Superintendent/five years experience of Senior Clerk.

**Post at Sr. No. 34 : Assistant Superintendent :** 1. A Bachelor's degree of any statutory University. Preference may be given to the candidates having IInd Class.

2. Three years experience in the office under State Govt./a large educational institute/reputed Semi. Govt. Organisation/Public (Ltd.) Companies/Co-operative Organisation/Corporation.

**Post at Sr. No. 35 : Senior Clerk :** Bachelor's degree of any statutory University. Preference may be given to candidates having IInd class.

**Post at Sr. No. 36 : Chief Cataloguer :** Junior diploma or certificate in Library Science with three years practical experience of catalogueing at University/College Library.

OR

Postgraduate diploma or Bachelor's degree in Library Science.

**Post at Sr. No. 37 : Issue Assistant (Library) :** i) S.S.C., ii) Junior Diploma or Certificate in Library Science from Govt. recognised Institute, iii) Knowledge of typing is desirable.

**Post at Sr. No. 38 : Clerk-Cum-Typist :** i) S.S.C or its equivalent, ii) Passed G.C.C. examination with English typing speed of 40 w.p.m. and Marathi typing speed of 30 w.p.m.

**Post at Sr. No. 39 : Stenographer (Higher Grade) :** S.S.C. or its equivalent, ii) Possess Govt. commercial certificate for a speed of 120 w.p.m. in shorthand in English and 40 w.p.m. in typing in English.

OR

i) S.S.C. or its equivalent, ii) Possess Govt. commercial certificate for a speed of 120 w.p.m. in shorthand in Marathi and 30 w.p.m. in typing in Marathi.

**Post at Sr. No. 40 : Jr. Mechanic :** ITI certificate in concerned trade from Govt. recognised Institute.

OR

VIIIth Std. with five years experience in University workshop. Heavy motor vehicle licence

**Post at Sr. No. 41 : Audio Visual Operator :** 1 Who have passed S.S.C or its equivalent examination with English and have passed Wireman examination atleast in IInd Class and 2 Who have minimum 2 years experience of handling and operating Projector and Public addressing equipment However, preference will be given to those who have diploma of handling and operating S S V. film and slide projector.

**Post at Sr. No. 42 : Tracer :** i) S S C or its equivalent, ii) Tracer's Course or passed Intermediate Grade Drawing Examination, iii) Typing — Marathi 30 w p m and English 40 w.p m.

**Post at Sr. No. 43 : Compounder (Veterinary) :** i) S.S C or its equivalent, ii) should have passed L S S course or prescribed Veterinary Compounder course or diploma in Pharmacy

**Post at Sr. No. 44 : Foreman Supervisor :** B Tech (Agril Engg.)

OR

Diploma in Mech./Ele Engineering with 2 years experience

**Age Limit :**

As on 31 1 1999 for the post at Sr No 1 to 8 (Associate Professor and its equivalent posts) shall not be above 40 years, and for the post at Sr No 41 the age limit is 35 years AND for the remaining posts not below 18 years and not above 30 years

**The maximum age limit is relaxable by 5 years in respect of the persons belonging to reserved categories.** The maximum age limit is not applicable to the persons already in service on regular establishment of this University/ Central Government/State Government/Semi-Government and other recognised Universities

**Physically Handicapped Persons :** The upper age limit prescribed for recruitment is relaxable upto 45 years in case of Physically Handicapped persons, if they are, otherwise suitable and have necessary capacity to perform the duties of the posts

**Freedom Fighter :** The maximum age limit is relaxable by five years for Freedom Fighters and their nominee,and this relaxation is applicable to the persons belonging to the reserved categories in addition to the Maximum age limit prescribed for the reserved categories

**Ex-Service men :** The age limit for the Ex-Service men, who have put in not less than six months continuous service in the Armed Forces are allowed to deduct from their age the length of continuous service in the Armed Forces plus three years In case of disable Ex-Service men, the age limit is relaxed upto 45 years for Class-III posts The Ex-Servicemen should submit their applications through the respective District Sainik Board

The reservation/preference as prescribed by the Government shall be given to the Project Affected Persons/Ex-Service-man/Physically Handicapped Persons/Earthquake Affected Persons/Freedom Fighters and Apprentice Candidates in Class-III and IV cadres

The reservation of 30% for female candidates shall be considered in respective categories

**How to Apply**

Prescribed application forms are available with the Registrar, Mahatma Phule Krishi Vidyapeeth, Rahuri, Dist. Ahmednagar (Pin-413 722) for sale on working days except Sundays and holidays from 10 00 hrs to 16 00 hrs in person/by post by sending a self addressed envelope (11"x5") with postage stamps of Rs 3/- and Demand Draft drawn of Rs 150/- on State Bank of India, MPKV Branch, Rahuri-413 722 (Branch Code No 3239) in favour of Comptroller, Mahatma Phule Krishi Vidyapeeth, Rahuri-413 722 Money order/Cash/Cheque/ IPOs shall not be accepted. The blank application forms will be sold only upto 21 1 1999 Application form duly filled in, in all respect, **should reach this office on or before 30.1.1999.** Persons applying from outside India, may apply on plain paper, giving full details regarding post applied for, their age, qualifications, experience etc, payment of application fees will not be necessary in their cases However, if such candidates are called for interview they will have to complete all the above formalities

**Other Details**

(1) The reserved category condidates should produce a caste Certificate in the prescribed form issued by the competent authority

(2) Candidates belonging to the NT(C), NT(D) and Other Backward Class categories, who desire to be excluded from the "Creamy Layer" should produce the necessary certificate in prescribed form issued by the Competent Government Authority as per the Government Resolution in Social Welfare, Cultural Affairs and Sports Department No CBC-1094/Pra-Kra-86/Mavaka-5, **dated 16-6-94, otherwise** their applications shall not be considered.

(3) The candidates from reserved category should belong to the following reserve categories notified from time to time for the State of Maharashtra

A) Scheduled Caste (including persons, converted into Buddhism from Scheduled Caste)
B) Scheduled Tribes
C) Denotified Tribes/Nomadic Tribes
D) Other Backward Classes
E) Special Backward Classes

(4) There shall be possibility of increase/decrease in number of posts advertised.

(5) Selected candidates can be posted/transferred anywhere under the jurisdiction of this University

(6) Nomenclature of post/s can be changed as and when need arises.

(7) Persons working other than this University should produce **"No Objection Certificate"** from their present employer at the time of interview, even though their application is received through proper channel.

(8) Persons who are already in the service of Central Government/State Government/ Semi Government/Other recognised Universities must apply through proper channel. They should send an advance zerox copy of the application directly to this University on or before **30.1.1999.** The application sent through proper channel must reach this office **on or before 15.2.1999.** The applications received through proper channel and within closing date shall only be entertained

(9) The applicant should satisfy all the requirements i e educational qualifications, age, experience etc, **on or before 31.1.1999.**

(10) The University reserves its right to fill in or not to fill in any of the vacancies advertised So also the University reserves its right to give or not to give an appointment to the candidates recommended by the Selection Committee It will depend upon the situation prevailing at the time of appointment

(11) Incomplete applications and applications received after closing date shall not be entertained So also correspondence in this regard shall not be made

(12) The posts sanctioned under Indian Council of Agril Research/Govt and other Schemes are temporary but likely to be continued. The persons appointed on such posts will be continued in the service till the post is continued by the I C A R./ Govt /Government funding agency In case the post is discontinued the University reserves its right to terminate services of the concerned staff

(13) Seperate application should be made for each post

(14) The candidate if called for interview has to appear at his own cost without Travelling Allowance and D A , etc

(15) Mere eligibility of a candidate shall not vest in any right for calling for interview The University reserves its right to call or not to call for interview

(16) The University shall not be responsible for postal delay

(17) Candidate should enclose true copies/ zerox copies of the relevant certificates duly attested, failing which their applica-

tion shall be rejected. Original documents should not be enclosed with the application.

(18) Documentary evidence for age, caste, educational qualifications, experience etc. indicated in the application should invariably be produced, failing which the application, will be rejected.

(19) Where the number of application received in response to this Advertisement is large the University may restrict the number of candidates for interview to a reasonable limit on the basis of screening test.

(20) Sr. No. and name of the post mentioned in the advertisement and also category of the applicant must be indicated at appropriate place in the application forms.

(21) Candidate applying for the post of Senior Research Assistant and/or Junior Research Assistant should indicate name of the discipline to which he/she desires to apply. Separate application for the posts of Junior Research Assistant should be submitted for each discipline failing which the application shall be rejected. A candidate/s selected as a Junior Research Assistant in a particular discipline shall not be allowed to change the discipline on the grounds that he/she has acquired post graduation in other discipline.

(22) If the Selection Committee for "Academic Staff" is satisfied that candidates with prescribed qualifications or experience or both are not available for selection, the Selection Committee may recommend the relaxation as per provisions of Statute 73 of Maharashtra Agril Universities (Krishi Vidyapeeths) Statutes, 1990.

(23) Canvassing in any form will completely disqualify candidature for employment.

**D.K. Jagdale**
**REGISTRAR**

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## JAMIA MILLIA ISLAMIA, NEW DELHI-110 025

**Advt. No. 4/1998-99**

Applications on the prescribed form are invited for the following posts so as to reach in the Office of the Assistant Registrar (Recruitment), Jamia Millia Islamia latest by 25.1.1999.

1. **One Director,** (16400-22400) Dr. Zakir Hussain Instt. of Islamic Studies (Dr. ZHIIS)
2. **One University Librarian** (16400-22400), Dr. Zakir Hussain Library.
3. **Two Professors :** (16400-22400), One each in Television and Environmental Engg.
4. **Three Readers one each in Radio, Economics and Computer Sc.** (12000-18300)
5. **Eighteen Lecturers** (8000-13500) : One each in Mathematics, Social Work (leave vacancy), English, History (Medieval), Urdu, Education (Eco.) (for SC), Education (Computer Sc.) (for SC), Education (Urdu) (for OBC), Education (Geog.), Education (Wood Craft), Distance Education (leave vacancy), Electronics (leave vacancy - Univ. Poly), Chemistry (for SC - deptt. of Applied Sc. & Humm.), Electrical Engg. (for SC). Two in Mech. Engg and two in Computer Science (one permanent and one leave vacancy).
6. **One Instructor in Craft** (Interior Decoration) (5500-9000)
7. **Three Lecturers (School)** (6500-10500) Two in English (one permanent and one leave vacancy), and one in Stenography.
8. **Two T.G.Ts.** ·(5500-9000) one each in (Hindi & Hindu Ethics) and Science (Bio)
9. **One P.T.I.** (5500-9000)
10. **One Primary School Teacher** (4500-7000)
11. **One Nursery Teacher** (4500-7000) (temp)

**Non-Teaching Posts :**

1. **One Engineer Incharge** (12000-16500)
2. **One Cameraman Gr. I** (8000-13500)
3. **Four Asstt. Engineer Electronics** (6500-10500)
4. **Four Producers - TV** (8000-13500)
5. **One Production Manager** (8000-13500)
6. **One Accounts Officer** (6500-10500)
7. **Three Sr. Engineering Assistant** (6500-10500)
8. **Two Computer Operators** (5500-9000)
9. **One Sr. Technical Asstt.** (5500-9000)
10. **Three Production Asstt. - TV** (5500-9000)
11. **One Accountant** (5500-9000)
12. **One Sr. Sound Recordist** (5500-9000)
13. **One Production Asstt. Radio** (5500-9000)
14. **Three Lighting Assistant** (4500-7000)
15. **One Staff Nurse** (4500-7000)
16. **Five Semi Professional Asstts.** (4500-7000)
17. **One Conservationist** (4500-7000) (for SC)
18. **Seven Technician Electronics** (4500-7000)
19. **One Receptionist** (4500-7000)
20. **One Sr. Photo Lab. Assistant** (4500-7000)

**Note :**

1. Reservations exists in the University as in accordance with law.
2. T.A. will be paid to SC/ST candidates called for attending the interview as per rule.
3. Jamia reserves the right to evolve a uniform and reasonable criteria for short listing of eligible candidates, if needed.
4. **Knowledge of Urdu is a desirable qualification for all non-teaching posts.**
5. For any of the above technical posts, selection may be made after practical test and interview in the Lab./Discipline.
6. Incomplete application or application on plain paper will not be entertained. Candidate already in service must apply through proper channel. The University will not be responsible for any postal delay in case of receipt of application forms and issue of interview letters.
7. Candidate must enclose the attested copies of degrees, diplomas and mark-sheets etc giving reference of experience/published work with the application form.
8. The post of Professor in Environmental Engg. shall be filled till the scheme lasts.
9. Candidates who have already applied for the post of Professor in Environmental Engg. (vide Advt. No 3/96-97, 10/97-98, 1/98-99), and Lecturer in Chemistry (SC) in the Deptt. of Applied Sc. & Hum (vide Advt. No. 3/97-98), Lecturer in Education (Economics) (for SC), Lecturer in Education (Computer Sc.) (for SC) (vide Advt No 1/98-99), Accounts Officer, Accountant, Receptionist, Computer Operator, Engineer Incharge, Asstt. Engineer Electronics, Sr. Engineering Asstt., Technician Electronics, Cameraman Gr.-I, Production Manager, Producer TV, and Production Assistant TV & Radio vide advertisement No (s) 1/96 dated 30 9 96 and 1/98 dated 3/4/98, need not apply again. They may however, submit the additional informations on the prescribed proforma by the last date

The prescribed application forms together with the detailed information/qualification and specialization (if any) can be had from the Assistant Registrar (Recruitment), Registrar's Office, Jamia Millia Islamia, Jamia Nagar, New Delhi-110 025 during working days either personally or by sending a self address stamped envelope worth Rupees 4/- (Ordinary Post) and Rs. 15/- (Registered Post) with a payment of Rupees 50/- (Rupees 20/- for SC/ST) the amount should be paid in cash on counter or through IPO/DD, drawn in favour of Jamia Millia Islamia

**Prof. Anisur Rehman**
Dt. 18-12-1998 **OFFG. REGISTRAR**

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